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MEDICO-LEGAL TREATISE

ON

HOMICIDE

BY

EXTERNAL VIOLENCE.

54563/B

2ND EDITION

MEDICO-LEGAL TREATISE

ON

HOMICIDE

BY



EXTERNAL VIOLENCE,

IN RELATION TO THE CAUSES OF DEATH BY VIOLENCE, AND THE
SIGNS OF DEATH BY THE DIFFERENT KINDS OF INJURY
TO THE NERVOUS, CIRCULATING, RESPIRATORY,
AND NUTRITIVE SYSTEMS.

ALSO TO

THE CIRCUMSTANCES WHICH MODIFY THE MEDICO-LEGAL
CHARACTERS OF INJURIES, & EXCULPATORY PLEAS.

BY

ALEXANDER WATSON, M.D.

FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND MEMBER OF THE MEDICO-
CHIRURGICAL SOCIETY; CONSULTING SURGEON TO THE ROYAL INFIRMARY, AND
SURGEON TO THE EDINBURGH EYE INFIRMARY; FORMERLY ONE OF THE
MEDICAL OFFICERS OF THE ROYAL AND NEW TOWN DISPENSARIES;
SENIOR ORDINARY ATTENDING SURGEON, AND LECTU-
RER ON CLINICAL SURGERY, OF THE ROYAL
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"THIS CLUE LEADS THEM THROUGH THE MIZMAZE OF OPINIONS AND AUTHORS TO
TRUTH AND CERTAINTY."—LOCKE.

PREFACE.

THE cultivation of Medical Jurisprudence as a distinct branch of medical science, is, in this country, of very recent date. The materials are ample, but few of them have hitherto been collected and turned to account in improving this department of the profession.

The circumstance of the chief public bodies in this country who superintend medical education, having now rendered the study of Medical Jurisprudence imperative on candidates for their diplomas, will give proper encouragement to the *teaching*, and consequently to the advancement, of this department ; for all branches of medicine have been advanced and improved exactly in proportion to the encouragement given to the teaching of them.

The extension and improvement of Medical Jurisprudence, as of other parts of medicine, can only be promoted gradually, by individual exertion in the contribution of facts and cases. From such cases important inferences are drawn ; which, when collected, generalized,

and commented upon, form the *principles* upon which the science is founded.

“ Ut varias usus meditando extunderet artes
Paulatim.”

The Medico-legal cases which occur in the experience of the generality of practitioners, cannot be very numerous. It is, therefore, more imperatively incumbent on those who have an opportunity, to put on record for public instruction the cases which occur to them. This consideration has chiefly influenced me in laying the present work before the public, which, I trust, will not be found destitute either of interest or instruction.

By far the most common medico-legal criminal cases, are those of Homicide by External Violence ; poisoning, which forms the only other species of homicide, being comparatively rare in this country.

The great frequency of homicides by external violence, their importance, and the difficulties which often attend them, render such cases highly interesting to the public ; but more especially to the medical profession, by whom the most important circumstances connected with them must in general be investigated, ascertained, and decided.

In the following pages the principles upon which Medico-legal cases of Homicide require to be decided, and the mode of investigating them, are explained, and illustrated by actual cases.

Having been employed, for a period of nearly twenty years, as an adviser of the legal authorities in criminal cases, I may be excused from an imputation of presumption in giving the results of my experience to

the public ; more especially as, in this capacity, I have, on various occasions, had the advantage of having been associated with several of the most eminent medical jurists in this, or perhaps any other, country. In proof of this, I need only mention the names of Sir William Newbigging, the late Professor Duncan jun., Professor Alison, Professor Christison, Professor Traill, and Dr Craigie.

Among other advantages, I cannot omit this opportunity of expressing my obligations to Professor CHRISTISON, Dr CORKINDALE of Glasgow, and several other friends, who have, in the kindest manner, placed various interesting cases at my disposal.

The approbation which this work has received from the profession, and the very flattering terms of commendation bestowed upon it, claim my deepest gratitude, and have induced me to make to it several important additions.

A. W.

51 QUEEN STREET, EDINBURGH,
September 1842

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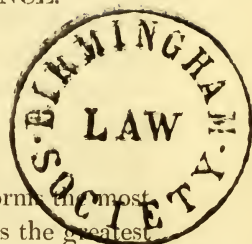
MEDICO-LEGAL TREATISE

ON

HOMICIDE BY EXTERNAL VIOLENCE.

PRELIMINARY REMARKS.

HOMICIDE, the subject of the following treatise, forms the most important branch of Medical Jurisprudence. It is the greatest injury which can be inflicted by one individual upon another, and occasions a result which is irreparable. Hence the safety of the public requires that the perpetrator of this crime should be convicted and punished. These considerations render the subject of homicide interesting to all members of the community; but to the medical practitioner it is a subject of more peculiar interest and importance than to others; for his assistance and opinion are generally required for the detection of homicide—it being necessary to determine whether death has taken place from violence or from natural causes; because, if from the latter, there is no homicide. Now, the most important particulars as to the cause of death can only be ascertained by the medical practitioner, who is, by his profession, alone qualified to do so; and farther, it is only by his consideration of these particulars, along with the other circumstances of the case, that a proper opinion can be formed. In cases of homicide, therefore, it frequently happens that the medical practitioner is placed in a situation of great difficulty and responsibility: of difficulty, on account of the intricate questions, often involving



points of extreme delicacy, which he has to decide regarding the cause of death ; and of responsibility, on account of the very important effect of his opinion to the person accused, whose life may be periled on the decision. Hence this subject so well merits the most serious attention of the medical profession.

A medico-legal exposition of homicide *by external violence*, forms the subject of the following pages. All cases of homicide, therefore, will be included in it, except those occasioned by *poisoning*, which forms of itself a distinct branch of medical jurisprudence—a branch which may well be omitted here, on account of the very full and able manner in which it has been treated by Professor Christison, in his highly esteemed work on the subject.

The following treatise will comprehend the consideration of all medico-legal cases of death, by wounds, suffocation, and burning. It will therefore include all cases of wounds, contusions, strangling, smothering, drowning, as also burning by fire and by escharotic substances. Some of these modes of effecting homicide are of frequent occurrence, and others, though more rare, are occasionally resorted to, in order to accomplish the same design. In many cases of homicide, too, where we are called upon to ascertain the cause of death, we do not know, previously to the examination of the dead body, whether death had been occasioned by one or several of the modes above alluded to. It is therefore indispensable for the medical practitioner to be perfectly acquainted with the indications produced by each of these forms of violent death, and the inferences to be deduced from them, in order that he may be able to detect them when they exist, and form a correct opinion upon the case.

The exposition of those signs of violent death by wounds, suffocation, &c. and of the medico-legal questions connected with them, forms the important object of the following treatise. It will therefore include the consideration of the circumstances which modify injuries, and pleas in exculpation of the accused. And as an addition to the work, in order to render it more complete, the medico-legal questions relating to the minor

effects of violence, and the injuries which mutilate, but which do not prove fatal, will be explained. But before proceeding to the particular object of this treatise, I shall premise some general remarks on the *principles* and *practice* of medical jurisprudence. These remarks are applicable to homicide by violence, as well as to the other branches of the science, for they relate chiefly to the *nature* and *objects* of *legal medicine*, including the duties and qualifications of those who may be called upon to practise it.

In accomplishing the objects of this work, several modes of arrangement might have been adopted. *1st*, The subject of homicide might have been arranged and divided according to the nature of the injuries by which it is produced; *2dly*, According to the regions upon which the injuries have been inflicted; or, *3dly*, According to the organic systems affected by the injury or violence. It is impossible, however, to arrange the subject according to the nature of the injuries; for the effects of similar injuries vary much in different individuals, from differences of age, sex, constitution, situation, habits, strength, state of health, treatment, and other circumstances. From the operation of these causes, an injury which would prove fatal to one individual, may be recovered from by another; and a slight injury may become dangerous or mortal, by the co-operation of other causes producing inflammation, hæmorrhage, or tetanus. Neither could the subject be properly arranged according to the region of the body injured; for the injury of a limb may prove fatal by affecting either the nervous or circulating systems, as well as an injury of the brain or heart.

The fatal effects of external injuries arise from their affecting, directly or indirectly, one or other of those systems of the body which are essential to life. Some injuries affect one system, some another. Thus severe injuries of the head and burns affect the nervous system; suffocation and wounds of the chest, the respiratory system; and wounds of the bloodvessels causing hæmorrhage, the circulating system. Some injuries also affect one system at first, and in their progress prove fatal by affecting another. Thus, an injury of the chest may in the first in-

stance affect the respiratory system, so as to threaten suffocation, and afterwards prove fatal by the impression made on the nervous system by irritative fever, or on the vascular system by hæmorrhage. These circumstances render a methodical arrangement a matter of difficulty, and they prove obstacles to the adoption of one so perfect as could be desired.

But as the fatality of wounds or other injuries depends on their affecting, either directly or indirectly, one or several of those organic systems of the body which are essential to life, the arrangement adopted in the following treatise has been founded on this doctrine; because an arrangement formed on this basis seems least objectionable, best suited to the purpose in view, and most accordant with the present state of medical science. Accordingly, the subject is treated of under the following heads:—

- I. General Remarks on Medical Jurisprudence.
- II. General Remarks on Homicide.
- III. Of Death by Violence.
- IV. The Medico-legal Definition of Wounds and other injuries.
- V. Of Homicide by Injuries of the Nervous System, including injuries of the head, extremities, burns, &c.
- VI. By Injuries of the Circulating System, including those of the heart and bloodvessels, death by hæmorrhage, &c.
- VII. By Injuries of the Respiratory System, including those of the wind-pipe, chest, asphyxia from various causes, &c.
- VIII. By Injuries of the Nutritive System, and organs of reproduction, including injuries of the bowels, and the subjects of rape, criminal abortion, and infanticide.
- IX. Of the Circumstances which alter the Medico-legal Character of injuries.
- X. On the Medico-legal Examination of Wounds, how inflicted, and on the question, whether death has happened by accident, suicide, or homicide?
- XI. On the Pleas of Exculpation on the part of the accused, including those of *malum regimen*, insanity, &c.
- XII. Of conducting Medico-legal Investigations, and framing Medico-legal Reports.

CHAPTER I.

GENERAL REMARKS ON THE NATURE AND OBJECTS OF
MEDICAL JURISPRUDENCE.

THE branch of medical science which treats of medical topics connected with the administration of justice, is termed **MEDICAL JURISPRUDENCE, FORENSIC or LEGAL MEDICINE**. Under this term those branches which consider the measures necessary for the preservation of the public health, and the principles for conducting life assurance, are also included. All lesions and actions of the human body, therefore, which injure life, or health, or public welfare, are comprehended within the range of this science. Hence it includes the consideration of all questions connected with Homicide, Criminal Abortion, and Infanticide; Injuries by Wounds and Blows; the Violation of Females; the Validity of Deathbed Settlements; the Principles of Life Insurance; the Legitimacy of Children; and the preservation of the public from disease, as also from injury by accidents which ought to have been guarded against.

In all such cases, which frequently come before the criminal, civil, and political courts, where important questions connected with medical science are involved, the opinion of the medical practitioner is generally required in their decision. For he alone, by his knowledge of the anatomy, functions, and diseases, of the human body, its physical history, and the effects of violence and other agents upon it, is qualified for ascertaining the medical facts, and deducing the inferences from them, upon which the decision depends.

To bring offenders to justice, to endeavour to convict them, or to enter into legal disquisitions, form no parts of the duty of a medical jurist. These belong to the *legal authorities*. In a

case of suspected murder, for example, it is by the medical jurist that the cause of death is ascertained ; by the laws of the country the extent of the crime is measured, and by the public prosecutor the offender is brought to justice ;—by the evidence of the medical jurist the homicide is established ; and by the moral evidence the criminal is convicted or acquitted.

Medical jurists have therefore a highly important duty to perform to the public and to individuals ; a duty upon which the security and welfare of society, as connected with the protection of the lives, the fortunes, and honour, of individuals depend. Hence, those appealed to as medical jurists, ought to be men accurately versed in all the branches of medical science, and to have directed at least some attention to medical jurisprudence. They should be men holding *diplomas* from some of the legally constituted medical faculties, and they ought to be men of the strictest honour and integrity.

The extent of medical knowledge possessed by a medical jurist cannot be too great. He requires to know accurately the symptoms, morbid phenomena, and the proper treatment of all diseases and injuries, the effects of remedies, of poisons, and of other external agents, upon the body. This is necessary, in order that he may be able to decide correctly in any given case, whether natural disease, poison, injury by violence, the effects of substances used as remedies, or other accidental circumstances, caused death ; and in order also that he may be able to judge whether the treatment of the injured person, which had been adopted, was proper, and was applied in conformity to the established principles of the profession, as well as to see that no important measure was omitted which might have saved the life of the deceased. Such an extent of knowledge is also required, because the medical practitioner may be called upon to attend such patients as have received injuries by the hands of others, and where the lives of the latter may be in dependence on the result of the injuries.

Some knowledge of LAW, too, as connected with medico-legal topics, though not indispensable to the medical jurist, is highly useful to him. For it will make him better acquainted with the duty he has to discharge, by informing him upon what

points his knowledge is more particularly required, and his evidence necessary.

The duty, then, of the medical jurist, is, by his science in certain cases, to assist judges and juries in the administration of justice. Upon the facts he ascertains in such cases, and the opinion he forms upon these facts, the conviction of the guilty, the acquittal of the innocent, the protection of the insane, the honour and fortunes of individuals, mainly if not entirely depend ; in this capacity, therefore, the medical practitioner may be said to act as a JUDGE—as the guardian of the lives, the characters, and the property of his fellow men.

In the exercise of this duty, it is obvious that the medical jurist must neither adopt nor endeavour to support one side or other of any case, when his opinion is required upon it, to the exclusion of a just regard to the opposite side. If he did so, the ends of justice could not be accomplished. Such a proceeding would be a degradation of his character, and a prostitution of his profession. When it has been attempted, conflicting opinions have been given by the medical witnesses, on the different sides of the case ; arising either from a slight distortion of the facts to suit their own particular views, or from ill-judged zeal to maintain the side of the party by whom they have been requested to appear.* These medical men have mistaken the nature of the duty they had to perform. In place of acting as *judges* on the points referred to them for decision, they have become the advocates and partizans of one side of the case ; and sometimes, what ought to have been an opinion on the facts of the case before them, has assumed the controversial character of a speculative debate ; and this, to the astonishment of the judges and jury—the amusement of the lawyers—the injury of parties—the obstruction of justice—the ridicule and contempt of the public, and the degradation of the medical profession.†

* This is quite different from the variety of opinion which is sometimes, though rarely, given as inferences from the same ascertained facts, in a doubtful and difficult case.

† In trials by juries, particularly in civil cases, where medical points are involved, it is not uncommon to see several eminent and respectable medical men called by one of the parties to give their opinions upon the case. They

The medical jurist should also be careful never to give an opinion upon any case without first ascertaining all the facts connected with it, otherwise he might do much harm and injustice both to individuals, to the public, and to his own character.

But though such cautions are necessary to be observed on the part of the medical jurist, when he is called upon to give an opinion as a witness on any particular case, they are not to prevent him, when required, from assisting and advising with the party on either side of a case in conducting it. When he so assists, however, his opinion should not be taken as a witness.

When the medical jurist has ascertained the medico-legal facts of the case under his consideration, he is then with an unbiassed mind to give his opinion upon them. This opinion he must form, with due caution and candour, from his knowledge of the principles of his profession, and without either partiality

do so, but the opinion given is probably founded on a partial and exaggerated memorial or view of the case, drawn up for the party by whom they are employed. On the other side of the case, a greater number of medical men are in general called, who, either on a partial representation of the case, by some distortion of the facts, by zeal for their employers, inattention, or ignorance, give an opinion upon the case completely the reverse of that given on the opposite side. The jury, however, generally adopt the opinion of the most eminent and respectable, though perhaps not the most numerous division. The case, therefore, comes to be decided by the opinions of a few medical men of the highest character, who can be obtained.

How much better it would be, both for the interests of the parties and the ends of justice, as well as for the consistency and respectability of the medical profession, if the parties would agree to rest satisfied with the opinions of a certain number of respectable and well-informed medical men, who should be mutually chosen and agreed upon. These individuals, acting as judges in their own province, should get every information furnished to them, both before and at the trial, but should not give their opinions till examined in court. In this way an impartial and proper opinion, such as warranted by the facts of the case, and the established principles of the profession, would be obtained.

It appears surprising that respectable medical men should give their opinions on any other footing than such as I have now ventured to recommend. For, when they are engaged on one side of a case, they get a highly coloured and partial statement of the facts, and cannot easily avoid being, in some degree, perhaps insensibly, constrained to exert their energies in support of the side on which they have been employed, rather than to give an impartial opinion on the real merits of the case, without reference to either side.

to one side or other of the case, or reference to the consequences of his decision.

The opinion thus formed may be decided and certain, and may tend either to the acquittal or conviction of the party accused ; or the opinion may be doubtful. But whatever it may be, let the opinion be distinctly stated, leaving the application of it to the case in the hands of the judges and jury, who always give to the accused the benefit of a doubt, when it is unaltered by the moral circumstances. In forming an opinion, however, let great caution be observed, giving proper attention to all the facts of the case, and to such authorities and recorded cases as may throw light upon the difficulties which may attend it.

To appreciate properly the pleas urged in exculpation on behalf of the accused, also forms an important and difficult part of the duty of the medical jurist. As these are chiefly connected with peculiarities of constitution or improper treatment on the part of the injured person, or on the state of mind of the accused, they require an extensive and varied professional knowledge for their decision.

There is often great difficulty in ascertaining accurately the facts of a case. But this is of so much importance, that too much attention and labour cannot be devoted to it. From ignorance and inattention, the facts are sometimes imperfectly and incorrectly ascertained, which leads of course to erroneous conclusions. Even medical opinions are sometimes given as facts. And not unfrequently, incorrect inferences and opinions (generally from ignorance) are deduced from facts, such as are not warranted by the established principles of the profession.

The evidence on all such points, therefore, should be appreciated, checked, and controlled, by a well informed medical jurist, who alone is capable of doing so, and who should attend in court for the purpose. When this is not done much may be thrust upon the attention of the judges and jury, in the way of medical statements and opinions, which more highly informed medical men know to be incorrect.

Such being the nature, the importance, and the difficulty

of the duties of the medical jurist, any additional arguments for the cultivation of medical jurisprudence seem quite unnecessary. Those already mentioned of themselves form motives for attention to the subject, which are strong and imperative. To assist by our science in dispensing justice between man and man—in maintaining the laws of society which tend directly to the protection of life and property—in repressing crime—in protecting the innocent—and in acting as the guardians of the imbecile and insane, are in themselves such noble objects, that surely no greater inducements can be required to the upright and generous mind, for the study and cultivation of a branch of the profession which has these objects in view.

CHAPTER II.

GENERAL REMARKS ON HOMICIDE.

HOMICIDE is the death of one individual by the violent act of another. It may be perpetrated in a great variety of different ways, such as by wounds, blows, strangling, hanging, smothering, drowning, exposure to cold, starvation, burning with fire or with escharotics, and by poisoning. But the degree of culpability incurred by the *killer* varies according to the circumstances under which the death of the unfortunate victim has been occasioned. Thus, *1st*, The fatal act may have been a mortal injury inflicted *intentionally* on the part of the killer, which constitutes the crime of *wilful homicide or murder*,—the greatest injury which can be inflicted by one individual upon another. In all civilized countries, this species of homicide is visited with the punishment of death. Hence the importance of the evidence of this crime being quite conclusive in all its parts. *2dly*, Homicide may be occasioned by a mortal injury inflicted without any intention of killing, but inflicted either with the design of doing some serious bodily harm, or from culpable recklessness. This is termed *Culpable Homicide*, to distinguish it from murder and the lesser degrees of homicide. *3dly*, Homicide may have happened by a fatal injury accidentally inflicted, without either any intention, on the part of the person who occasioned it, of doing any serious hurt to the deceased, or having been guilty of any culpable recklessness or carelessness. Or the homicide may have happened from a slighter degree of injury,—one not of itself necessarily or usually fatal, but proving so by the conjunction of other circumstances, such as improper treatment, infirmity, previous or acquired disease, and the like. Cases of this kind are termed *Accidental or Casual Homicide*. These two inferior degrees of homicide (the culpable and accidental) are, of course, visited

with less degrees of punishment than murder. *Atthly*, and *lastly*, Homicide may happen from injuries given to the deceased in self-defence. This is therefore termed *Justifiable Homicide*, and is not followed with any punishment unless the accused person was the aggressor in the fatal affray.

These distinctions, however, are more for the consideration of those who administer justice or who are members of the legal profession, than the medical jurist. But by the latter they should also be kept in view ; for the opinion expressed by him concerning the nature and degree of the injury, may, in many cases, fix the division to which the homicide belongs. And farther, by the facts ascertained by him, both the *mode* employed and the *intent* of the killer, are sometimes pointed out and rendered obvious or confirmed ; and it is only by the opinion of the medical jurist that the judges and jury are informed, whether the injury sustained by the deceased was in itself of a mortal nature, or proved fatal by subsequent accident or casualty, by previous or acquired disease, infirmity or improper treatment ; these being circumstances which modify the nature and degree of the homicide.

In order to establish the crime of homicide, it is necessary, not only to prove that the injury received by the deceased had occasioned death, but also to be able to shew that no other cause existed in the body to account for it.

A medico-legal inspection of the body of the deceased, therefore, always implies a minute examination of each of its different parts, in conjunction with a minute inquiry into the previous history and symptoms of the case. This requires, on the part of the medical inspector, the utmost skill and attention, in order that his knowledge and experience, derived from the various branches of the profession, may be correctly applied to the elucidation and decision of the case submitted to inquiry ; and the more so, on account of the many secret and concealed ways in which homicide can be committed.

In forming an opinion upon medico-legal cases, it is necessary, *first*, To ascertain all the facts relating to each particular case, including the history, symptoms, and morbid appearances, together with the other particulars connected with the medico-

legal questions involved in it ; such as, whether death has been caused by accident, suicide, or murder ; *Secondly*, To compare these ascertained facts and other medico-legal circumstances with each other, and with the structure and functions of the body in its healthy and diseased states ; *Thirdly*, To draw correct inferences from the careful consideration of all these particulars.

In accomplishing this, however, considerable difficulties often occur, particularly in cases where the effects of injury very much resemble those of disease, or where there is disease conjoined with the injury, in which it is not easy to distinguish whether the death is to be attributed to the disease or the injury. Other difficulties occur from the alleged circumstances appearing to be inadequate to have caused the effects produced, as well as from peculiarities of constitution and the treatment of the patient, which may have materially contributed to the fatal termination of an injury.

CHAPTER III.

GENERAL REMARKS ON DEATH BY VIOLENCE.

THE human body consists of certain combinations of organs, called systems, which are necessary to the continuance of animal life.

The proper performance of the functions of the nervous, circulating, respiratory, and nutritive and digestive systems, which are mutually dependent on each other, is indispensable to life. Hence life cannot continue without the combined integrity of these systems. The three first are immediately necessary to life, the last only remotely. So that a severe injury, or the suspension of the functions of any of the former, generally proves quickly fatal, or causes *sudden death*; while injury of the latter commonly proves more slowly fatal, and so causes what is termed *lingering* death.

These four systems are all so dependent upon each other, that one of them cannot be seriously injured without the others being affected by it. A severe injury, therefore, inflicted upon any one of them, proves fatal to life, by being destructive to the functions of the other systems, as well as of that primarily injured.

Each of these systems may be either *directly* affected by an injury upon itself, or *indirectly*, by an injury of some of the others. Thus, 1st, The *Nervous System* may be either directly affected by an injury of the brain or other parts of the nervous system; or it may be affected indirectly by a severe injury of either of the other systems, as an injury of the heart, lungs, or bowels. 2d, The *Circulating System* may be either directly affected by an injury of the heart, or some of its vessels causing hæmorrhage; or indirectly by lesion of some of the other systems, as by a deficient supply of nervous energy, either from increased or diminished pressure upon the brain—from poison

taken into the system—injury of some part of the nutritive system—or a want of oxygenized blood by injury of the respiratory organs. 3d, The *Respiratory System* may be either directly affected by a wound of the chest, by effusion of blood or air into its cavity, or injury of the windpipe ; or indirectly, by injury of the circulating or nervous systems. And, 4th, The *Nutritive* or *Digestive System* may be affected either directly by a wound or blow upon some part of the chylopoëtic viscera ; or indirectly by injury of the nervous, circulating, or respiratory systems.

The fatal effects of an injury inflicted upon any part of the body may be either immediate, as when death takes place at the instant it has been received ; or the fatal effects may be delayed, as when death happens after the lapse of some days, weeks, months, or even years. Hence violent injuries of the circulating, respiratory, or nervous systems, very often prove immediately and suddenly fatal ; even an injury of some part of the digestive system may cause death in a few hours ; and in other cases, as shall afterwards be shewn, the patient may linger for a considerable time after an injury of the same parts.

In forming an opinion upon cases where death by violence is suspected, these circumstances are to be kept in view, viz. That injury or violence which proves mortal, must either, directly or indirectly, immediately or afterwards, affect the integrity of one or several of those systems of the body, which are essential to life. Hence the nature and extent or degree of the injuries of the different parts of the body, capable of producing death, require to be ascertained from previous experience and observation. But from the great variety in the circumstances of individuals, the amount of such injury which will cause death is not easily determined. In actual cases, also, the nature and extent of the injury inflicted on one or several of the vital systems, require to be distinctly ascertained, before death can be attributed to this cause. It is then necessary to shew that the injury, either directly or by its effects, proved fatal ; and if it should only have proved fatal after the lapse of some length of time, how the injury was the cause of death must be carefully and distinctly traced.

One of the most important of our inquiries, therefore, is, What injuries prove fatal? It is easy to specify many injuries which are certainly and inevitably fatal, but it is not easy to say what is the least degree of injury which *might* prove fatal. We are often called upon to decide whether death has been caused by an injury apparently slight, or must have taken place from other causes. This question is occasionally attended with much difficulty, for many less degrees of injury prove fatal to some individuals, which are recovered from by others. In the common operation of lithotomy, for example, the injury done to the patient may be nearly the same, in certain cases, when skilfully performed, yet how different its effects are in different individuals. In some the constitution does not appear to be much affected by it, in others considerably, and in some the operation very soon proves suddenly fatal, though very little or no difference in the circumstances of the patients to account for this was apparent. In like manner, a puncture of the chest is fatal in some cases, and recovered from in others; and the same may be said of several different severe injuries. A slight wound may be fatal by inducing tetanus, gangrene, erysipelas, or other violent inflammation. A blow on the chest, by causing inflammation of the pleura, may, in some individuals, cause fatal effusion of fluid into the thoracic cavity, which does not happen in others. This variety of effects arises from the differences in the circumstances of individuals, and in the powers of the constitution to counteract the impression made upon it.

Improprieties on the part of the patient or his friends, improper exposure to cold, the use of stimulants, neglect or improper treatment on the part of his medical attendant, or a conjunction of these, may also tend to render an injury fatal, which experience has shewn would very probably not have been so, under more favourable circumstances.

Some injuries, therefore, are fatal from peculiarity of constitution, or unfavourable circumstances of the patient; some prove fatal by accident; some are rendered fatal by the conjunction of disease; while others proceed to a fatal termination by neglect or improper treatment.

It is, therefore, of great importance for us to inquire not

only what injuries prove inevitably fatal, but under what peculiar circumstances the slightest degrees of injury are followed with this result; in order that we may be able to say in any particular case, whether the injury was sufficient to have caused death directly by the violence, or this event was the effect indirectly of other circumstances.

In estimating the danger or fatality of a wound, therefore, a great number of circumstances require to be taken into account. No universal rule can be applied to particular cases; each case must be judged of by a careful consideration of all the symptoms, morbid appearances, and other circumstances attending it. These are to be estimated according to the established principles of the profession, together with the knowledge and experience acquired by the medical jurist. Besides those above alluded to, several other inquiries are necessary to complete our investigation of Medico-legal cases. These are, the probable means by which an injury has been inflicted, and the probable intent of the person who caused the injury; circumstances which, in many cases, may be either ascertained or confirmed by the enquiries of the medical jurist, or may be inferred from them.

CHAPTER IV.*

MEDICO-LEGAL DEFINITION OF WOUNDS.

Preliminary Remarks.

IN legal medicine, under the term of *Wound* is to be included every local alteration of any part of the body produced by violent means, whether the cause has been directed against the body, or the body against the wounding cause. Hence we refer to wounds, *incisions, lacerations, contusions, concussions, fractures, dislocations, sprains, and burns*, whether by fire or by escharotics.

Medical men, even of the present day, often give very vague and indefinite denominations to wounds, in framing medico-legal reports. They sometimes even attach them to a class to which they do not belong, nor even resemble. Such errors may give rise to very serious consequences; for, in estimating the evidence on any particular case, much may depend on the import of the expression used by the medical examiner as to the nature of the injury. It is, therefore, of great importance to lay down a fixed and correct definition of the different kinds of injury, before entering upon their medico-legal history.

SECTION I.—*Of Wounds, or Solutions of Continuity of the Soft Parts.*

A wound, according to the ordinary acceptation of the term, and that in which it is at present used, denotes an accidental solution of continuity of the soft parts, more or less recent, generally bloody, and occasioned by a mechanical cause. The nature of wounds varies according to the nature of the cause by which they have been occasioned; thus, the wound may be that which is termed a scratch, excoriation, puncture, cut, con-

* This chapter has, in a great measure, been founded on that part of the Treatise of Orfila on the same subject.

tused wound, gun-shot wound, bite, laceration, venomous wound and the like. These terms are generally well understood by medical men, and they should be carefully attended to, and not confounded in medico-legal reports.

All wounds are not equally dangerous. Punctured wounds are generally more dangerous than incised wounds; not only because they penetrate deeper, but because they divide imperfectly the nervous filaments and aponeurotic parts, and afford a less free egress to matter effused from them. Contused wounds, and especially those from fire-arms, may be attended with commotion, and they may be followed by gangrene and destruction of the parts wounded and those adjoining; they are therefore more formidable than the preceding. Hæmorrhages too, which sometimes take place from sloughing, and the presence of foreign bodies which keep up suppuration, often augment their severity and danger. The bites of rabid or venomous animals and poisoned wounds are dangerous according to the nature of the poison lodged in the injured tissues of the body.

The medical jurist may not only be appealed to, in order to determine the nature and danger of a wound, but also to state how long it may have existed, and the time required for its cure. It is therefore necessary that he should know precisely the phenomena by which different wounds are accompanied at different periods of their progress, and the circumstances which may modify, accelerate, or retard their cure.

Wounds present different phenomena according to their nature, and the different periods at which they are examined. An incised wound may become exactly reunited in a short time after the division without suppuration, and hæmorrhage may be stopped by compression of the wound, by bandaging, &c. The lips of the wound at first exhibit an appearance of slight inflammation, there being redness and heat followed by exudation of lymph. This lymph is capable of organization to form a cicatrix. It is at first semitransparent, and afterwards becomes thicker, more tenacious, and on the second or third day it becomes white. At a later period it is penetrated by vessels, forms the connecting medium of the cicatrix, and becomes confounded with the tissues. The cicatrix is of a bright red colour

on the first days of its formation, it then gradually grows paler, till it assumes the colour of the skin, and afterwards becomes whiter.

When the wound only unites by suppuration, the phenomena are different. This happens when the wound is attended with loss of substance, when its edges are contused, when it has inflamed before being united, or when some general or local malady prevents its healing. After the cessation of hæmorrhage blood collects on the surface of the wound and forms a clot, which defends the wound from the external air and other bodies. Towards the second day a sero-sanguineous discharge penetrates through the bandages, and stops about the third day. The wound then reddens and inflames, and a sero-purulent discharge takes place. At this period the surface of the wound becomes swelled, livid, dingy, with brown streaks upon it. Granulations of a pale colour begin to shew themselves, which enlarge, become red, form a covering to the surface of the wound, and excrete a fluid at first serous, but afterwards thick, homogeneous, and yellow. When the suppuration is fairly established, the edges of the wound sink; the granulations also sink at the circumference of the wound, a cuticular pelicle forms which is the commencement of the cicatrization. This gradually extends itself towards the centre, the wound diminishing in size, and drawing the surrounding parts together. The cicatrix at first red, becomes at last paler than the skin. When the wound is of a large size, the cicatrization not only commences at the circumference, but also at different other points of the centre of the sore.

The cicatrix is formed more or less rapidly according to the nature of the neighbouring parts, the extent of the wound, the age, and the healthy or unhealthy state of the individual. Other circumstances being alike, wounds of the head or arms cicatrize more readily than those of the lower extremities. Wounds attended with considerable loss of substance, and where tendons, aponeuroses, and bone are exposed, do not, in general, heal till after the exfoliation of these organs, and are long in cicatrizing. In young subjects wounds heal more rapidly than in old persons; and in persons of a good and sound constitu-

tion, than in those of a delicate or diseased frame. In these last, wounds frequently assume an ulcerated character, and have the appearance of having existed longer than may be the case. The same happens if the wound is in the situation of an old cicatrix.

When cicatrices are newly formed, they are of a red colour, vascular, and injected with blood, and more or less tender to the touch. At a later period they become more white, smooth, less tender, and remain for a time more coloured than the skin. But it is impossible to set an exact limit to the time required for these changes. The surgeon must, therefore, appeal to his own experience and observation in forming a probable opinion in particular cases. The cicatrix afterwards assumes a paler colour than the skin; but by the action of cold, in many cases, it becomes red or livid; which appearance may continue for a time, the part afterwards again assuming its former pale colour.

It is also proper to be aware, that cicatrices present different characters according to the nature of the solution of continuity which has given rise to them. Those of simple wounds are generally linear, solid, and insensible: those of wounds attended with loss of substance, are often depressed, adhere to the bone beneath, and are easily torn asunder. The cicatrices of wounds remain for a long time red and irregularly spotted in different directions. Cicatrices of suppurated lymphatic glands have a folded wrinkled appearance; those of old ulcers are generally smooth or covered with scurf, which is sometimes pretty thick.

When a patient has sunk during the progress of a wound, it exhibits remarkable appearances after death. The edges of the wound and its granulations sink, they become pale, and the commencement of cicatrization does not appear distinct from the other parts of the wound, so that it is more difficult to form an opinion as to the age of the wound after death, than during life.

SECTION II.—*Of Contusion.*

A contusion is a bruise of the soft parts, without cutting or laceration of the skin, caused by a blunt, hard, or firm and heavy body. By attentive examination, three degrees of con-

tusion may be observed. *First*, A blow or contusion which only ruptures the capillary vessels. *Second*, Dilaceration in which the tissues are abraded, giving rise to superficial sores. *Third*, Attrition, or complete disorganisation of the soft parts, which are reduced to a softened state.

As contusion is attended with rupture of the blood-vessels, there is ecchymosis or infiltration of blood into the cellular tissue of the part, which is invariably present; though the existence of ecchymosis does not always lead us to infer the existence of contusion.

The effects of a contusion must neither be confounded with the spontaneous rupture of a muscle, a tendon, or other part, which may be produced by a violent incomplete contraction, nor with the rupture of a hollow viscus, which may arise from over-distension of the organ.

All parts of the body may be more or less affected by contusion; but the danger arising from it is not equally great. Contusions are in general formidable by the commotion which they occasion in the most important organs, by the rupture of tissues, and by inflammation, suppuration, or gangrene which may ensue.

SECTION III.—Of *Ecchymosis*.

Ecchymosis being an immediate and almost invariable effect of contusion, it becomes an indication of great importance in a medico-legal point of view. But as some specialties attend its detection, and others indicate its origin from different causes, it is necessary to make a few remarks upon ecchymosis as an indication of external violence.

Ecchymosis consists of an infiltration or effusion of blood into the cellular tissue of any part of the body. When it takes place into the cellular tissue under the skin, so as only to form one large and slightly elevated tumour, it is called ecchymosis by *infiltration*; if, on the other hand, blood is accumulated in a considerable mass, forming a soft, prominent, and elastic swelling, as is most frequently observed after blows on the head, it is said to be ecchymosis by *congestion*. Ecchymosis, to a slight degree, often exists without presenting any external mark.

The most common causes of ecchymosis are blows and falls. But it may also be occasioned by narrow and oblique punctured wounds. Diseases attended with certain morbid states of the constitution, as scorbutic and hæmorrhagic complaints, are sometimes evident causes of ecchymosis. Any great exertion of the body continued for a length of time, or a violent movement, as in leaping, lifting a heavy weight, vomiting, the stretching and compression of the parts in child-birth,* are likewise occasional causes of ecchymosis. It may also happen without any evident cause.

The seat and extent of ecchymosis are very various in different cases. In some it is situated immediately under the epidermis; while in others the blood is infiltrated among the muscles, beneath the tendinous aponeuroses—under the periosteum—between the viscera and the membrane which covers them—into the substance of these organs—between the peritoneum and the parietes of the abdomen—or between the nerves and bloodvessels, being effused into the cellular tissue which forms their sheath. In some cases the effused blood is small in quantity, and occupies but a small space; in other cases the quantity is considerable, and extended over a great extent of parts, or occupies a large cavity.

In order to be able to form an opinion as to when an injury had been received, the progress of superficial ecchymosis should be correctly known by the medical jurist. In a majority of cases, the ecchymosed part at first exhibits a red or bluish colour, which soon becomes livid, lead-coloured, or black. This takes place from the blood situated under the skin. But the blood ceasing to circulate, undergoes certain changes before it is absorbed, which cause a variation in the colour of the part. In a few days the colour lightens, it acquires a violet tint, then becomes greenish, yellowish, and disappears. At the time the colour changes, the spot extends, and the centre is always deeper coloured than the circumference. These changes arise from the extravasated blood losing its colour, becoming brownish, coagulated, undergoing daily absorption, as also being diluted with the secretion from the cellular tissue, by which it becomes more diffused. The age, constitution, habits of life of the pa-

* Chaussier.

tient, the extent, the situation of the ecchymosis, and the cause by which it has been occasioned, have a remarkable influence upon the time necessary for its complete resolution. I have often found it distinct when cut into, though probably much lessened in size, several weeks after the infliction of an injury. In the case of an old man, it was distinct five weeks after.

When ecchymosis is deep seated, as under the tendinous aponeurosis of the muscles, or among the muscles themselves, there is most frequently no external mark; hence the necessity for deep incisions on the dead body before giving as an opinion that there is no change in the subjacent cellular tissue. But occasionally, at the end of five, six, or eight days, spots on the skin, more or less extended, of a violet or yellowish colour, appear at the seat of the ecchymosis, and sometimes at a distance from it.

The diagnosis of ecchymosis is easily established. When an ecchymosed part is cut into, blood is found extravasated into it. Cadaverous lividities are to be distinguished from ecchymosis, by attending to their seat, and cutting off a thin slice of the skin. In lividity, there is simply a congestion of blood in the capillary vessels, so that the colour does not extend to the subjacent parts. The red or livid spots, too, which are caused by scurvy and other chronic cutaneous diseases, by leech bites, or after superficial excoriations by blistering or burning, exhibit peculiar characters, and never exhibit the appearances seen in ecchymosis.

It is sometimes difficult to determine whether ecchymosis found in a dead body is the result of injury before, or of putrefaction after, death. Ecchymosis from putrefaction is not confined to one, but takes place at several parts of the body, and only when decomposition is well marked; and the different shades of colour never occur in this, such as we observe in the progress of natural ecchymosis.

Can ecchymosis be produced by injuries after death? This can only take place to a very small extent, by blows, a few hours after death,* or by the rupture of some considerable vein, which

* See Observations by Dr Christison, Edin. Med. and Surg. Journal vol. xxxi.

will easily be detected. It cannot otherwise be produced, being a vital process, depending on the circulation of the blood.

The demands for the application of this subject to medico-legal cases, are so numerous that it will be found well deserving of the most careful study. The facts and observations above mentioned, will be found amply illustrated by the cases afterwards to be given.

SECTION IV.—*Of Concussion.*

A concussion or commotion is a derangement of the functions of any part or organ of the body, arising from the shock occasioned by sudden violence. A commotion may be accompanied with derangement of structure, in which case it is more dangerous, particularly when any of those organs, which are immediately necessary to life, are affected.

SECTION V.—*Of Fractures of the Bones and Cartilages.*

Fracture may be defined to be the rupture of a bone, or of a cartilage by external violence, by a violent exertion, or a fall. It is characterised by change of form, unnatural mobility, and crepitation of the fractured part ; phenomena which sooner or later manifest themselves according to the nature and situation of the fracture. The danger, too, of fractures depends on their situation, their simplicity, or their complication ; on circumstances which accompany them, the age, constitution of the patient, &c.

SECTION VI.—*Of Dislocations of Joints.*

A dislocation may be defined that derangement of the position of the bony surfaces forming joints, which is the immediate result of a stroke, a fall, external violence, or muscular action, and which is always accompanied with pain, a greater or less alteration of form, of the length of the part, and the embarrassment or impossibility of its movements. Dislocations may be simple or compound ; but it is only the latter which endangers life.

SECTION VII.—*Of Sprains.*

A sprain is an affection of a joint, characterised by a painful

swelling and difficulty of movement, occasioned by a twist or any other sudden jerk or violence. These are generally attended with more or less rupture of the ligaments of the joint, and though not dangerous to life, may be followed by permanent lameness, or form the commencement of chronic disease. They therefore do not often form the subject of medico-legal enquiry, except in cases of damages.

SECTION VIII.—*Of Burns.*

A burn is an injury occasioned by the application of excessive heat, by combustion, or by caustic substances. The injury may amount to the rubefaction of the skin and inflammation of the tissues; or the tissues may be carbonised and totally destroyed. When the injury is superficial and limited in extent, it may not be attended with danger. But if extensive, and more particularly if deep and attended with eschars, it is very commonly fatal.

CHAPTER V.

OF HOMICIDE BY INJURIES OF THE NERVOUS SYSTEM, INCLUDING INJURIES OF THE BRAIN—SPINAL-CHORD, AND THEIR NERVOUS RAMIFICATIONS.

Preliminary Remarks.

INJURIES which affect the nervous system, consisting of the brain, spinal chord, and their nervous ramifications to the other parts of the body, are of very frequent occurrence; and as they produce either death, or effects causing imminent danger to life, they are very frequently the subjects of medico-legal investigation.

In treating of homicide by injuries of the nervous system, we shall arrange them into four classes; 1st, Injuries of the tegumentary and bony parts of the head which contain the brain; the 2^d, Injuries of the brain; 3^d, Injuries of the spinal-chord; and, 4th, Injuries of the nervous ramifications from the brain and spinal chord to the other parts of the body, which produce death by their influence on the nervous system. It is to be recollected, however, that two or several of these injuries may, and very often do, exist in the same case.

Injuries of the nervous system well deserve the greatest attention from the medical jurist, for they are a frequent cause of sudden as well as of lingering death in cases of homicide; and their investigation is often attended with difficulty from the resemblance of their phenomena to natural disease, increased sometimes by the co-existence of other circumstances which may affect the nervous system; and which may either have occasioned or greatly contributed to produce the fatal result—such as debility, exposure to cold, spirituous liquors, morbid irritability of the nervous system, and the like. To this may be added the fact, that some of these injuries prove fatal without any

trace of altered structure being left in the body to mark their nature, as sometimes happens from concussion of the brain,—a blow on the pit of the stomach,—a fall from a height,—or a stroke from lightning.

“Injuries and diseases of the brain and spine, which occasion or induce an irreparable alteration of texture, destroy on the same principle as those of other organs and parts of the body. The fatal effect is more immediate, or otherwise varied according to the situation, nature, and extent of the mischief. The vital functions may be, but by no means always are, directly embarrassed in these cases.”* These general remarks will be fully illustrated by the cases afterwards detailed ; in which it will be seen that injuries of the brain or spine may either instantly prove fatal, or cause more slow or lingering death, after the lapse of several days, weeks, or months.

SECTION I.—*Of Injuries of the Tegumentary and Bony parts of the Head, without Lesion or other injury of the brain.*

Punctures, incisions, lacerations, and contusions of the tegumentary parts of the head, may occur without any very serious consequences ; as when the injury itself is not severe, and the inflammation following it is not violent.

When violent inflammation does take place from wounds of the above nature, considerable inflammatory fever, and other troublesome or even fatal consequences may supervene. This arises chiefly from injuries of the tendinous parts causing inflammation, irritative fever, and suppuration ; or by the inflammation extending to the brain or its membranes. Erysipelatous inflammation may also supervene upon a slight wound of the scalp and prove fatal.

Another, though rather anomalous, effect of slight wounds of the head, is tetanus. Erysipelas and tetanus, however, will afterwards be considered as accidental circumstances which modify the medico-legal character of wounds.

Contusions of the parts covering the cranium are very common. They always give rise to more or less ecchymosis ; in which cases the effused blood may be situated either under the

* Travers on Constitutional Irritation, vol. i. p. 171.

skin, aponeurosis, or pericranium. When injuries of this nature are not accompanied with injury of the brain, no danger in general arises from them, if properly treated.

The diagnosis of ecchymosis of the scalp, however, deserves attention. The ecchymosed tumour sometimes imparts a crepitating sensation to the fingers of the surgeon, and leaving a depression at its centre, with a hard circumference, it has been mistaken for a fracture of the skull. A slight pulsation, also, which the tumour sometimes possesses from the throbbing of one or more large arteries, has been mistaken for the pulsations of the brain. Such errors are to be guarded against, by a careful examination of the tumour and the symptoms attending the case.

After death, a contusion is always marked by an effusion of blood into the cellular tissue, which is observable when cut into, even for several days or even weeks after the receipt of the injury, if it has been considerable.

But inflammation of the membranes of the brain occasionally takes place from very slight blows upon the head. In such cases, however, there has either been an injury done to the brain by the blow, or the inflammation has taken place, either from some irregularity on the part of the patient, or previous chronic disease. Each of these cases will afterwards come to be considered, when treating of injuries of the brain, and the circumstances which modify the medico-legal character of injuries.

Punctures or simple fractures of the skull, when unattended with injury of the brain, are not in general followed by any bad consequences. The injured part of the bone may even feel depressed, from the outer table being somewhat driven into the diploe, without the inner table of the bone or the brain being injured. Such cases are not alarming, unless attended with the peculiar symptoms of pressure upon the brain; and the fracture of the bone, by expending the force of the blow, is generally attended with less concussion of the brain than the same blow would have been without such a fracture. Fractures with depression of bone upon the brain, compound and comminuted

fractures of the skull, with and without depression, will be treated of in a subsequent section.

In all cases of fractured skull, however simple it may appear, a very guarded prognosis should at first be given; for it is often very difficult to ascertain the exact extent of the injury, and unfavourable symptoms, followed by death, may afterwards unexpectedly supervene.

SECTION II.—*Of Injuries of the Brain.*

The most common injuries of the brain may be included under three classes, *1st*, Concussion or commotion of the brain; *2d*, Compression of the brain; and, *3d*, Inflammation of the brain.

These injuries of the brain are frequently followed by a fatal result, and they produce death often suddenly, and in different ways, *1st*, When concussion or commotion of the brain proves fatal, death is the effect of *syncope*, resulting from a depressed state of nervous energy, by which the action of the heart is diminished and brought to a stand. This has been termed death beginning at the *heart*. The same kind of death is produced by injuries of the extremities, and other parts of the body, which prove fatal by what is called the shock or depression they occasion, while others, as injuries of the spinal cord, affect the brain indirectly, by impairing respiration and digestion. *2d*, Compression of the brain, on the other hand, proves fatal by the insensibility and coma having the effect of bringing the respiration to a termination, which has been called death beginning at the *brain*. *3d*, Inflammation of the brain or its membranes, occasions death either by inflammatory and irritative fever, or by the products of the inflammation causing compression of the brain. Such are the serious consequences which frequently arise from injuries of the Nervous System.

In some cases there is no external lesion, or it is so slight as not to appear to be formidable, and yet the disorder internally may be extreme. In other cases the external injury may be considerable, and point out the dangerous nature of the case. In some cases death happens almost instantly upon the receipt of the injury, in others after the elapse of a few days; while in

others, the patient, after going about pretty well for a considerable time, is seized with symptoms which prove rapidly fatal.

A. Of Concussion or Commotion of the Brain, and Extravasation of blood within the Cranium.

Concussion of the brain is of very frequent occurrence, and may be induced by many different causes, consisting of an injury or shock being given directly to the brain itself; or affecting the brain indirectly, in consequence of the shock being communicated by an injury received on some other part of the body. Other causes have been observed to produce the same effect, such as the shock occasioned by lightning, or a blow upon the pit of the stomach, intense cold, poison, and burns.

When a concussion or commotion of the brain has been received, it gives rise to a train of symptoms which are quite peculiar. These are, immediate stunning and insensibility, accompanied with headach, a small, weak, and irregular, pulse, as also coldness of the extremities and surface of the body, sometimes attended with delirium, at other times with syncope and convulsions.

The most striking peculiarity in the effects of concussion of the brain, consists in the depression of the vital powers by which the blood is circulated, and which occasions syncope and death.

Some degree of concussion of the brain attends almost every case of severe injury of the head, as well as some injuries of other parts of the body.

In commotion of the brain, the patient receives a shock which is instantly followed by stunning and insensibility. These either cause him to stagger and fall, or prevent him from rising when he is down. If this is the only consequence of the injury, when slight or moderate, it gradually goes off, and the patient recovers. If, however, the commotion has been severe, death may either very soon follow, or the patient may die after an interval of one, two, three, or more days. Or, if one or more bloodvessels within the cranium have been ruptured, a lesion of the brain has been occasioned, or the skull fractured, other serious symptoms, indicating compression or inflammation of

the brain, may come on, while the symptoms of commotion abate.

In the cases of more violent concussion of the Nervous System, death ensues from the remarkable depression which is produced in the action of the heart, as indicated by syncope, feebleness of pulsation, or sudden ceasing of the action of the heart, coldness of surface, accompanied with a suspension of sensation and voluntary motion.

“ There is great variety as to the amount of injury which will produce, in different individuals of the human species, the sedative effect on the circulation now in question ; and as to the duration and termination of that sedative effect, which sometimes abates quickly, and sometimes gradually increases till it is fatal, some hours after the injury.

“ There is also great variety in the alterations of the functions of the Nervous System itself, which result from such injuries, and accompany or succeed the sedative effect on the circulation. In some cases the coma is long continued and profound, in others transient ; in some cases it is attended by much convulsion, in others by little or none ; in some cases it is succeeded by much headach, or by general or partial amentia or delirium, or by incessant nausea and vomiting ; and in others by none of these. And it is certain that all these varieties in the symptoms, in such cases, may be independent of any perceptible alteration of the structure of the Nervous System.”*

In cases of slighter and more partial injury of the brain, or upper part of the spinal cord, when death is produced, it is by coma or stupor, in consequence of respiration becoming imperfect, and being ultimately suspended by defect of sensation. The characteristics of this are, that the circulation and animal heat not only continue till death, but sometimes even survive the respiration for a short time, during which, venous blood moving along the arteries, and soon ceasing to circulate through the lungs, brings the respiration to a stand.

“ The most common injuries of the Nervous System which cause death, thus preceded by coma, are those in which there is partial compression of the nervous matter, as by depressed

* Alison, pp. 9, 10.

bone, or effused blood, pus, or serum; but it is in the same way that death is often produced by disorganizations of the brain, which do not necessarily imply compression of its substance; and also by certain poisons, the effect of which on its functions does not appear to depend on alteration of the pressure on it; and it is therefore incorrect to speak generally of such symptoms as indications of pressure on the brain.

“ We know from Physiology, that the part of the Nervous System which must be especially effected in these cases, where the failure of respiration is the immediate cause of death, must be at the sides of the medulla oblongata; but the part visibly injured is often considerably distant from this.

“ There is very great variety as to the duration and degree of the insensibility, which precedes the failure of respiration in such cases of injury of the Nervous System; and as to the other affections, either of the brain and nerves, or of other organs, which may attend that insensibility, such as headach, delirium, somnolency, spasms, palsy, dilated or contracted pupil, preternaturally slow, or frequent, or irregular pulse, &c. Even the function of respiration itself is variously affected in different cases of the kind, being sometimes hurried and imperfect, and in other cases unnaturally slow and deep, for some time before it is finally suppressed. After the death thus produced by injuries of the Nervous System, just as after death by asphyxia, the blood is found accumulated chiefly in the lungs, pulmonary artery, right side of the heart, and great veins.

“ These two modes in which injuries of the Nervous System may cause death, though perfectly distinct in some cases, are evidently combined in others; the same cause both instantly weakening the heart's action, and likewise deadening the sensibility, so as gradually to suppress the action of respiration. And there are many cases of injury of the head, where insensibility and faintness from the concussion immediately succeed the accident, but quickly abate, and are succeeded after an interval by insensibility with full pulse, and death in the way of coma; which may then be confidently ascribed to compression of the brain by effused blood or serum.”*

* Alison's Pathology, p. 11.

The symptoms of commotion of the brain may be distinguished from those of compression and inflammation, by weakness and irregularity of the pulse, vomiting and coldness, which accompany the insensibility in commotion of the brain ; while compression of the brain is accompanied by a full, strong, and often irregular pulse, natural heat of the body, relaxation of the muscles, dilatation of the pupils, stertorous breathing, and paralysis. In the insensibility of commotion, the patient can often be roused, which is not the case in compression. In the latter, the patient lies in an apoplectic state, in which the coma is often accompanied with convulsions.

Commotion of the brain is likewise to be distinguished from inflammation of the brain, by the absence of inflammatory fever, delirium, and other symptoms, which will afterwards be described, as occurring in inflammation of the brain.

The danger to life which happens from concussion of the brain occurs in proportion to the violence of the concussion, its effects within the cranium, and the circumstances of the patient.

Though commotion of the brain frequently causes sudden death, yet patients occasionally recover from it. The patient, however, in many cases, upon recovering from the immediate effects of commotion of the brain, begins to suffer from symptoms either of compression or of inflammation which the nature and violence of the injury may have caused to supervene.

In the latter class of cases, in which there is probably an organic lesion produced by the injury, the diminished action of the heart and arteries, produced by the commotion of the brain, retards or prevents either effusion of blood, or symptoms of inflammation from taking place till reaction commences.

Sudden and almost immediate death may take place from violent concussion of the brain, without producing any organic lesion perceptible upon dissection.* But very often the injury will be found to have produced some lesion of the brain which may afterwards produce death, either from hæmorrhagic effusion producing compression, or from inflammation around the injured parts of the brain.

* Pott, Brodie, Alison.

It is sometimes impossible to say at first whether the symptoms from the injury are altogether owing to concussion, or partly arise from compression of the brain; for they may be blended in consequence of the complex nature of the injury. But after some time has elapsed, if the immediate shock of the injury has not proved fatal, the symptoms assume more the appearance of those of apoplexy, from internal effusion of blood or a depressed portion of skull compressing the brain, consisting of insensibility from which the patient cannot be roused, slow but full pulse, accompanied with slow and laborious respiration, and sometimes convulsions. In some ambiguous or doubtful cases, the existence of compression of the brain is confirmed by the presence of a depressed fracture of the skull.

In a medico-legal point of view, it is very important to observe that concussion of the brain may prove fatal without either fracture of the skull, effusion of blood within the cranium, or any other change being observed on dissection.*

CASES.—“One night in January, a lad was heard to fall from the mast-head of a vessel in the river, and was found lying upon the deck, with his head under a cask, perfectly insensible. He remained in that state, his pupils dilated, his fæces and urine passing involuntarily, breathing about eleven times in the minute, pulse 168. He was twice blooded, the pulse sinking each time under the operation; on the afternoon of the third day he died without a struggle. Not the least vestige of injury in the brain or spinal cord was discovered on inspection.”

“A prize-fighter was taken off the ground insensible, and apparently apoplectic, and died in eight hours. No lesion or extravasation could be discovered on careful inspection of the brain.”†

In concussion of the brain, death is caused by the shock given to “the whole nervous organ, which, being unrelieved, speedily lapses into annihilation of function.”‡

A man was knocked down by a blow from another with his

* Pott, Abernethy, Sir A. Cooper, Travers, Brodie, 336.

† Travers on Constitutional Irritation, vol. ii. p. 342.

‡ Ib. vol. i. p. 166.

fist, which the celebrated Dr Cullen ascribed to be the cause of death, from the following considerations: 1. Because the man was previously in good health. 2. Because death followed instantaneously after the blow was received. 3. Because concussion will act as a cause of death where there are no marks of injured structure; and, 4. Because no other disease was visible, either external or internal, to account for death.

A case is mentioned by Mr Pott of an officer whose feet slipped from under him on the deck of a ship, upon which sleet and rain had fallen. He fell on his breech, and suffered a concussion of the brain, by which he was stunned, and inflammation with delirium supervened.*

A simple direct cause of fatal concussion of the brain is a blow on the head with the fist. Cases of this kind are very often the subjects of medico-legal inquiry. But as the patient is generally knocked down and falls violently upon the ground, it will in many cases be doubtful whether the blow or the fall caused the fatal concussion of the brain. When, in such cases, there is effusion of blood within the cranium, its situation, as corresponding with, or opposite to,† an external mark of injury, from either the blow or the fall, may lead to an accurate conclusion on the case. Nevertheless, the culpability of the assailant is the same, whether the damage arose from the blow he inflicted or the fall occasioned by it.

In some cases of commotion, however, it may be doubted whether the deceased had been knocked down, or had fallen from other causes. It will sometimes be found that the situation and nature of the external injury, render the infliction of it by a fall out of the question. In other cases, only possible, under very peculiar circumstances, which may not have existed. By the nature of the fall, and of the place where the head and body struck, a correct inference may sometimes be drawn.

In trials for homicide, doubts have been entertained as to the possibility of a blow with the fist having the power to occa-

* Abernethy's Lectures.

† In several cases I have examined, the chief clot of effused blood was on the side opposite to the external mark of the injury which occasioned it.

sion a mortal injury upon the head. The following cases will sufficiently illustrate the effects which blows with the fist upon the head are capable of producing.

CASE 1.—George Macleish and John Macvey were tried at Glasgow, 29th December 1831, charged with the assault and murder of William Carlisle, on the 3d September preceding. Carlisle and a friend named Green, were going home about eleven o'clock at night, where they met seven or eight men standing at the corner of a street, who called out to them, and gave them bad names. Green, the friend of Carlisle, requested they might be allowed to pass along peaceably, as they were harming no one; upon which Macleish, one of the party, knocked him down; he rose, and was again knocked down by Macvey. When he recovered, he searched for Carlisle, who had also been knocked down. Macleish had sparred with him and knocked him down. Carlisle rose again, and was a second time knocked down by Macvey, and died almost immediately. Drs Corkindale and Spittal, who inspected Carlisle's body, found a considerable effusion of blood immediately under the scalp, and extravasation of blood on the brain. They were of opinion that either the blows or the falls were the cause of death. There having been no proof of malice on the part of the prisoners, the charge of murder was departed from by the public prosecutor. The prisoners were found guilty of culpable homicide, and sentenced to fourteen years' transportation.

CASE 2.—James Grace was tried at Edinburgh, 14th December 1835, for the murder of George Baird. These two young men having had a previous quarrel, fought a pitched battle in the King's Park on the 15th July preceding. They fought for more than an hour. Baird was carried home in a state of insensibility, and died in about a quarter of an hour after arriving at the High Street, where he resided. On the 15th July I inspected the body of Baird, along with Mr Black, surgeon to the Police Establishment. We found on several parts of the scalp slight ecchymosis, which was very considerable above the left ear, the blood being effused into the substance of the temporal muscle. There was also ecchymosis of the eyelids of

both eyes, and several scratches, accompanied with ecchymosis, on the nose, chin, and other parts of face. Upon opening the head, there was about four ounces of coagulated blood under the dura mater of the left hemisphere of the brain, corresponding exactly to the situation of the contusion above the left ear. James Grace pleaded guilty of culpable homicide, and was sentenced to imprisonment for two months. In this case death took place from concussion of the brain.

CASE 3.—James Fraser, chimney-sweeper, was tried at Edinburgh, 21st July 1834, for the murder of his wife, Maria Dalrymple or Fraser.

Fraser and Dalrymple lived together as man and wife. They were both much given to drunkenness, and had become very degraded in their circumstances and character. They lived in a most uncomfortable apartment, which was destitute of furniture, with the exception of some straw which formed their bed. There were several holes in the floor, which communicated with a house below, occupied by another individual. About eleven o'clock in the forenoon of the 6th of February, Fraser returned home from his work, and found Dalrymple in the house. Their neighbour who lived below then heard them begin to quarrel, and soon afterwards heard cries of "murder" from Dalrymple, whom she heard fall suddenly upon the floor. Upon this she went up stairs to their house, and found Dalrymple standing near the fire-place. Her eyes were rolling in her head, and she could not speak. This neighbour then left the house, but in a few minutes afterwards, Fraser informed her that Dalrymple was dead, which he ascribed to an apoplectic fit, "as she turned three times round in a nervous fit, and fell down dead."

The body of Dalrymple was inspected by Dr Craigie and myself on the day following her death. We observed several slight marks of injury on the nose and forehead, and a little bloody fluid issuing from one side of the mouth. At the lower part of the cranium, behind the left ear, upon dissection there was found an ecchymosed mark of a severe contusion, between three and four inches in diameter. There was no external discoloration, but dissection discovered the muscles to be contused, disorganised, and infiltrated with blood. Upon

opening the cranium, an effusion of blood was found under the dura mater, and covering the whole surface of the brain and cerebellum. The effused blood was situated between the arachnoid coat and pia mater, and its quantity was greater upon the right hemisphere than the left, and was particularly great around the cerebellum and medulla oblongata. The vessels at the base of the brain were extensively ruptured. There was no appearance of disease, and no fracture of the skull.

In this case sudden death had been occasioned by a severe blow behind the left ear, causing concussion of the brain with laceration of its bloodvessels.

The evidence at the trial shewed that Fraser had struck Dalrymple, but there was no proof of his having done so with any thing but his fist. He was convicted of culpable homicide, and sentenced to transportation for life. He afterwards confessed that he had struck his wife with his fist, but nothing else.

Fraser was a strong muscular man, and, when excited by violent passion, increased, as it was, by strong drink, which he had taken previously, it is not difficult to conceive his having inflicted a severe *knock-down blow* with his fist, such as that found behind the ear of his wife.

CASE 4.—Donald M'Cormick was tried at Edinburgh for the murder of his wife, Nov. 11. 1831. On the 16th July, Dr Christison and I proceeded, by warrant of the Sheriff, to inspect the body of Mrs Stevenson or M'Cormick, in order to report as to the cause of her death.

This woman had lived very unhappily with her husband and a daughter of his by a previous marriage. They were all much addicted to intemperance, and were people of degraded character. M'Cormick had served in the army, for which he received a pension. But, unfortunately when this was paid to him, he could not refrain from drinking to intoxication, so long as it lasted. His conduct at such times was very outrageous. In the brutal conduct of beating, kicking, and dragging his wife about by the hair of the head, his daughter joined him; and on the day previous to the death of his wife, he had been seen by several of his neighbours to beat and maltreat her. Several persons saw him give her severe blows with his fist on the head

and face. On the 1st and 13th of July, in particular, she had got a severe blow behind the ear on the 1st, and several, both on her face and head, on the 13th. In the evening of the 13th, she took refuge in the house of a neighbour, to whom she complained much of her head, and declared "they had murdered" her. Next morning she was seized with convulsions and coma, of which she died in a few hours. At the time she died, a student of medicine, who had been called to see her, several neighbours, together with her husband and his daughter, were present. In presence of these bystanders, the husband and his daughter accused each other of having murdered the deceased, at the same time swearing at each other the most horrid oaths, and using the most shocking epithets.

On inspecting her body, we found several marks of recent contusions on the face, head, and arm. The skull was not fractured, and was throughout three-eighths of an inch in thickness, being about three times the thickness of ordinary skulls. A small degree of bloody effusion covered the upper part of the right hemisphere of the brain, beneath the dura mater. At the anterior part of the middle lobe of the brain on the right side, there was a pretty thick coagulum of blood, which, when removed, appeared to amount in quantity to about half an ounce. The substance of the brain was firm and vascular; the lungs and heart were natural, the latter coated with fat, and contained no blood; the arteries were natural; the kidneys were small, and much diseased, having a mottled appearance, and changed in structure; the urine presented coagulated flakes on boiling; and the ovaria were enlarged, and converted into cysts filled with watery fluid.

Our report upon this case stated, that we had found several marks of contusion on the face, head, and other parts of the body, and an effusion of blood upon the brain sufficient to have occasioned her death.

CASE 5.—William Murphy was tried at Edinburgh, 13th January 1810, for the culpable homicide of Michael Gallacher. It appeared from the evidence that Gallacher was a travelling merchant, who came to the house of Murphy, where there was another man and his wife of the same description. After sit-

ting down together, Gallacher proposed that they should join for some liquor. Several gills of whisky were obtained. After drinking these, Gallacher quarrelled with Murphy about getting more, upon which Gallacher struck the pannel and knocked him down. A struggle and fight then ensued, in the course of which they both fell to the ground, having had hold of each other. A crowd soon collected, and police-officers were called in, when they found Gallacher sitting on the floor and leaning against a chair, but upon endeavouring to raise him, he was found to be quite dead.

Upon inspection after death, a slight wound was found on the back part of the head, and extravasated blood between the integuments and cranium, above the right ear. Within the cranium, at the same place, there were three spots of blood on the surface of the brain.

CASE 6.—William Bartlem was tried at Warwick, 6th August 1831, for the homicide of George Dyke. It appeared from the evidence that William Bartlem, George Dyke, and his wife, with two other men, were drinking together in a public house. William Bartlem and George Dyke began to throw water at each other in sport. Mrs Dyke thought her husband insulted, and insisted on his fighting Bartlem. A challenge was accordingly given. After fighting several rounds, the seconds wished to put an end to the contest, and prevent its proceeding farther; but Dyke's wife interposed, and threatened to spurn her husband if he did not fight it out, and beat his opponent. The fight was continued until Dyke, who had received several severe blows on the chest, *and behind the ear*, fell senseless. A surgeon was sent for, he found Dyke in a state of stupor, which he conceived was from intoxication, so he only ordered him to bed; but he died in a few minutes. On opening the body, extravasated blood was found both on the brain and lungs. Bartlem was found guilty of manslaughter, and ordered to pay a fine of one shilling.

CASE 7.—James Gall was tried at Lewis, in England, 9th August 1832, for killing and slaying James Launder. Gall and Launder had quarrelled at cards. Launder seized Gall by the nose, a struggle ensued, and Launder was thrown down. They

then proceeded to a field at a short distance, where they fought. Launder again fell, and Gall above him. The latter rose, but Launder was found to be dead. Effusion of blood was found on the surface of the brain, occasioned either by the blows or falls. Gall was found guilty of manslaughter, and had one month's imprisonment.

CASE 8.—Andrew M'Millan was tried at Glasgow, September 1830, for the murder of John Stean or Stain, whom he had knocked down with his fist, in an affray upon the pavement, in consequence of which he died on the following day. Drs Corkindale and Neilson found the mark of a severe contusion above the right ear, at which place the parietal and temporal bones were fractured, and several loose portions depressed. Under the fractured part, and above the dura mater, there was a cake of coagulated blood four inches in diameter, and one and a half inch in thickness. There was also a considerable quantity of blood effused and spread over the surface of the brain, beneath the dura mater, on the same side, and extending to the base. The skull was much below the average thickness.

The thinness of the skull, in this case, may account for the fracture of it having occurred from a less degree of injury than would have produced the same effect in the generality of cases. But it is possible that the fracture may have happened from the fall upon the street, when the individual was knocked down. This supposition is somewhat confirmed, 1st, By its being on the right side, and therefore not the one usually struck, unless with the left hand of the assailant ; 2^d, There were other marks of injury on the right knee, and on the right side of the chin, which had probably been occasioned by the same fall ; 3^d, There was a wound below the left eye, shewing he had received a pretty severe blow on the left side of the head, which may have knocked him down and caused the fall. It is quite possible, however, in this case, that the chief contusion on the right side of the head was the effect of the blow with the fist. For we have seen, in other cases of similar injuries, that all the same effects were produced, except the fracture of the skull,—a circumstance which may have happened in this case from its peculiar thinness.

These cases illustrate the effects which are sometimes produced by blows with the fist upon the head. In some of them it might be doubted whether the commotion and effusion of blood upon the brain were the effects of the blow, or the fall received by the deceased when knocked down. But several circumstances tend to render it highly probable, if not certain, that the blow and not the fall was the cause. These are, *1st*, Such effects being very rarely if ever observed from similar falls without a violent blow at the same time; *2d*, In most of the cases above given, the fall having been on soft ground; *3d*, The internal effusion of blood being generally found either at the place corresponding to the external mark of the blow, or on the side opposite to the external mark,—a circumstance which connects the effusion with the blow.

The three following cases, in which the blows were inflicted on the head with sticks, &c. and where the individuals did not fall, tend to confirm the above inference.

CASE 9.—William Maxwell was tried at Glasgow, 13th September 1836, for the murder of his wife, Elizabeth Rider or Maxwell. It appears from the evidence adduced, that the pannel had kicked the deceased, and struck her upon the head with a stick. Upon this she called out “murder,” became insensible, and shortly afterwards died. Upon after inspection, Drs Corkindale and Spittal found several marks of injury upon the body of the deceased, and extravasation of blood upon the brain.

CASE 10.—John Cowie, tried at Edinburgh, 28th November 1803, for the murder of his wife, Isobell Scott or Cowie. By the evidence adduced he was convicted of the murder, by having beat his wife with a stick, and trampled upon her. Upon dissection, Messrs Law and Inglis found ecchymosis at the back part of the head. And within the cranium, at the same part, there was blood effused upon the surface of the dura mater.

CASE 11.—Charles Donaldson was tried at Edinburgh, 14th March 1836, for the murder of his wife, by having struck her, on 9th November 1835, on the head with a frying-pan and a glass bottle. He was seen to have struck her with these, and

she appeared to faint, became insensible and apoplectic, continued in this state till the 11th, when she died. Drs Combe and Macdougall of Leith attended her, and inspected her body. They found several marks of contusion on the head, and on the lower part of the forehead the largest was situated. Beneath each of these blood was effused. Similar marks of contusion existed on the arms, shoulders, and hips. On removing the skull-cap (which was entire), there were from three to four ounces of coagulated blood on upper and left side of head, between the dura mater and skull. On the left side there was also a rupture of a portion of the substance of the brain, with slight effusion of blood, which did not communicate with the external effusion. No appearances of any disease of brain. Mrs Donaldson was about 44 years of age, and much given to drink.

These gentlemen, as well as Dr Traill, considered her death to have taken place from the injuries described. There was no previous symptoms of disease of the brain, nor morbid appearances afterwards to warrant any other conclusion.

Donaldson was convicted and executed.

The two following cases, on the other hand, are examples of blows where the chief injuries were produced by the head having forcibly struck on hard resisting bodies in falling.

CASE 12.—William Alexander was tried at Edinburgh, 27th January 1827, for the murder of his wife. It appeared in evidence, that, on the 6th September, in a drinking squabble, Alexander had hit his wife a heavy blow with his fist above the left ear, which knocked her down. In falling, her head came forcibly in contact with the cross bar between the two legs of a table which stood by. She was instantly rendered insensible and motionless. Next day she was taken to the Royal Infirmary, where she died on the 8th. Mr Newbigging, one of the surgeons to the Infirmary, reported on the case, that, on dissection, he found ecchymosis at the chief contusion, situated at the upper and right side of the forehead. No fracture of the skull was found, but about four ounces of blood extravasated under the dura mater of the right hemisphere of the brain. The extra-

vasation extended to the base of the brain. One of the ribs was also found to have been broken by the prisoner having pressed forcibly upon the chest of the deceased with his knee or foot. Mr Newbigging gave it as his opinion that death had been caused by violence, not by intoxication or disease, and that by the head having been forcibly thrown against the bar of the table.*

CASE 13.—John Campbell and William Holm were tried at Edinburgh, 8th November 1827, for culpable homicide. It appeared that the deceased Alexander Lawson, a weaver from Ireland, had taken shelter with his wife and family for the night, in the shed of Mr Hardie, farmer at Currie, on 6th August 1827. The pannels dragged him out and knocked him down, by which the posterior and lower part of his skull was fractured by the fall, and blood extravasated on the surface of the brain. There were several projecting stones on the ground where he fell. Lawson had become immediately insensible, breathed hard, and now and then uttering heavy sighs or groans. He was carried into the shed and died. In this case Mr Newbigging also gave it as his opinion that the fracture of the skull and effusion of blood on the brain had been caused by the fall, not the blow with a fist.†

Although in some cases of commotion no change of structure can be observed in the brain after death, yet we cannot infer from this that lesion of the brain has not been produced.‡ When death happens immediately, or soon after the injury, time has not been allowed for subsequent changes to take place, which might have pointed out organic lesion on dissection. Hemorrhage, for example, may be suspended by the depressed state of the circulation which takes place, but afterward occurs when reaction is established, and produces compression of the brain. The same may be said of inflammation, which generally supervenes if the patient recovers from the primary shock of the injury. Besides, the ultimate structure of the brain is so minute, that some organic injuries of it may not be cognisable to our senses.

* Syme's Justiciary Reports.

† Ibid.

‡ Brodie.

That some organic lesion of the brain has been occasioned by commotion, we are warranted to conclude, from the immediate insensibility and failure of the *vis vitæ* which take place, as well as from the hemorrhage and softening of the brain which are observed after death, in most of the fatal cases. The inflammation of the brain which generally comes on, in cases of concussion, where the patient recovers from the first shock of the injury, is a farther confirmation of this opinion. For were there no organic derangements, it would not be easy to account for the inflammation supervening.

When the patient recovers from the immediate shock of concussion of the brain, he may die either from an effusion of blood taking place from ruptured vessels, or from inflammatory effusion or softening of the brain, the consequences of inflammation. The interval of time that may occur between the receipt of a concussion of the brain and its fatal termination is very various. This arises of course from the violence of the concussion, and the effects produced by it. It may be fatal instantaneously. It may be fatal in a few hours, or it may be fatal after an interval of several days.

The following case of concussion of the brain, which proved fatal from inflammation of its membranes, was attended by the late Dr Duncan junior, and myself.

CASE 14.—Alexander Dickson, aged 52, a brewer's servant, and a remarkably sober man, was knocked down on the 26th of April 1822, by three men when he was returning home from his work between eleven and twelve o'clock at night. He received upon the face several blows, which caused bleeding at the nose, with great pain, and ecchymosis of his right eye. He was stunned at the time he was knocked down; he was kicked on other parts of his body, but was soon after able to rise and go home, when the men ran off. On the following day he was able to go to his work, but he complained much of headache. On the 29th he became worse, was affected with stupor, pain of head, flushed face, hurried breathing, quick pulse (94), and slight palsy of the left side of the mouth. From the urgency of the symptoms he was four times bled from the arm, several times

leeches, blistered, &c. But on the morning of the 1st May he became delirious and unmanageable; the symptoms became aggravated; stupor, insensibility, and coma supervened; and he died on the 4th, being eight days after receiving the injury.

Upon dissection, we found a copious effusion of yellow coloured matter between the arachnoid coat and pia mater, dipping down between the convolutions of the brain. The pia mater appeared to be more highly vascular than usual. These appearances were general over the whole surface of the brain and cerebellum. At the medulla oblongata there was about half an ounce of pus. When the substance of the brain was cut into, the absence of the usual red points was very remarkable. The ventricles contained about an ounce of colourless fluid, the base of the cranium about three ounces.

In other cases the patient may apparently get well, go about, and after a week or ten days he may be taken ill with symptoms of inflammation, which may cut him off after a few days' illness. Or he may never altogether recover perfectly. Chronic inflammation and its consequences may go on progressively, and terminate fatally after the lapse of several weeks, months, or even years.

CASE 15.—Jean Anderson, a woman of 22 years of age, and of dissolute habits, received, on the 6th September 1831, a blow on the head from John Robertson, with his clenched fist, by which she was knocked down. Three days afterwards he again assaulted her, and knocked her down with another similar blow, in consequence of which her head came violently into contact with the floor. On the day after the last assault she was able to go out to the Police Court to substantiate a charge of assault against Robertson. When she returned home she was seized with headache, swelling on the left side of the head, pain, and other symptoms of inflammation of the brain. In a few days afterwards she became insensible, comatose, a slow pulse (being so low as 34), and died, after having been much affected with convulsions, fourteen days after the injury. On dissection, there was no mark of violence upon the scalp, but

considerable serous effusion into the ventricles, and at the base of the brain.

CASE 16.—A boy is mentioned by Mr Pott* (case 37) in whom death took place on the eighteenth day after receiving a commotion of the brain. The only morbid appearance after death consisted of bloody serum between the membranes of the brain.

CASE 17.—A woman, mentioned by the same author (case 38), who received an injury on the head, remained well for twelve days. She then became ill and died with symptoms of compression of the brain. The ventricles were found to contain bloody serum, and a small coagulum of blood.

CASE 18.—In another case (39.) the patient, who fell on his breech, got well from the first shock of the injury, but was seized on the twelfth day with symptoms of effusion, and died on the twentieth day comatose. There was a small quantity of bloody serum at the base of the brain, and the ventricles were filled with clear lymph.

CASE 19.—A man, aged 40, is mentioned by Dr Abercrombie to have fallen from his cart upon Leith Sands. Though his head struck against the sand, he felt no inconvenience for a week afterwards but occasional headache. He was then affected with fever, and died comatose at the end of the second week. On dissection, the ventricles of the brain were found distended with serous fluid, without any other morbid appearance.†

CASE 20.—A girl, aged 13, is mentioned by the same author to have fallen from a swing and struck her head with violence on the ground. For six weeks after the accident she complained of headache, but was not otherwise ill. Feverish symptoms then came on, followed by slight delirium and coma, and she died two months after the fall. Upon dissection, the ventricles of the brain were found distended with serous fluid, without any other morbid appearance.‡

“A man, mentioned by Serres, § after a blow on the back and lateral part of the head, which stunned him at the time,

* See Pott on Fractures.

† See Abercrombie on Diseases of the Brain.

‡ Ibid.

§ Recherches Sur Le Cervelet.—Journal de Physiologie, 1822-23.

had a certain unsteadiness in walking, which made him always anxious to take the arm of a friend ; and he had a delicacy of his head, which made him much affected by a small quantity of wine. This continued about eighteen months, when he became sad and irritable, with trembling of the limbs. Soon after, the left leg became paralytic, and the arm of the same side was numb and weakened. After the insertion of a seton in the neck, the arm recovered, and, three months after this, the patient died with fever, delirium, and an affection of the bowels. There was disease in the right lobe of the cerebellum, with an abscess and extensive softening.”*

Appearances on Dissection.—Upon dissection in cases of commotion of the brain, the morbid appearances are in general sufficiently obvious, though somewhat various in kind. It rarely happens that no morbid appearances are observable.† Sir A. Cooper states in his Surgical Lectures, that, as the morbid appearances depend on laceration of the brain, it is only in the more severe cases of concussion in which this has taken place that extravasation of blood is observed. In slight cases he conceives there is only derangement of the circulation of the blood through the brain.

CASE 21.—A young gentleman, 16 years of age, while fencing, received a wound from his companion in the right orbit. The point of the foil (provided with a button but not covered) penetrated the lower eyelid near its inner angle, upon which he instantly fell down. When seen shortly after, he was in a state of insensibility, had a weak pulse, stertorous breathing, and occasional vomiting. He was bled generally and locally—cold was applied to the head—purgatives were administered, but the symptoms continued ; the left side seemed paralysed ;—the right was frequently affected with convulsions, and he died within forty-eight hours from the receipt of the injury. “On dissection, the brain and its membranes were highly vascular, much distended with blood, and there was an effusion of serum in the ventricles, but not the slightest appearance of fracture or in-

* Abercrombie on the Brain, p. 123.

† Brodie, p. 337.

jury in the bones of the orbit. The wound penetrated in a slanting direction towards the supra-orbital plate, but which was not injured, nor was the membrane covering the brain in the least discoloured, as if it had been struck by the foil. The wound appeared to end among the cellular substances.”*

In this case death seems to have been produced by concussion of the brain ; occasioned perhaps partly from the thrust of the foil, and partly from the fall.

“ Neither compression nor lesion,” says Mr Travers, “ is necessary to the fatality of concussion, but it rarely happens that pure concussion induces a complete and continued suspension of the senses and voluntary motions. It is generally complicated in this case with extravasation or lesion of the brain, or its membranes, or both.”†

Separation of the dura mater from the inside of the cranium is often produced at the place of an injury ; but this can be imitated on the dead body.‡ Alluding to extravasation of blood between the bone and dura mater, Sir B. Brodie says, “ All the experience I have had on the subject tends to confirm the opinion advanced long ago by Mr Abernethy, that blood is never poured out in such quantity as to produce dangerous pressure on the brain, except where the middle meningeal artery has been lacerated, and from this vessel the hæmorrhage is sometimes very copious. I do not recollect,” he adds, “ to have seen it lacerated except in combination with fracture running across the bony canal in which it is lodged ; cases are, however, recorded by authors, in which the artery has been opened into and bleeding has taken place from it, independently of fracture.”§. Abernethy, vol. ii. p. 43.

The extravasated blood, the consequence of laceration of the brain, is often situated within the dura mater. This is rarely situated at the place where the blow has been inflicted, and is most common at the base of the brain. It affords an example of *contre-coup*.

* See case which occurred to Mr Anderson, Selkirk, by Dr Scott. Edinburgh Medical and Surgical Journal, vol. xlii. p. 360.

† Travers on Constitutional Irritation, vol. i. p. 166. ‡ Brodie. § Ibid.

In recent cases blood may be effused between the skull and dura mater, or on the surface of the brain ; in cases of longer standing, inflammatory effusion on the surface, or fluid into the ventricles, of the brain ; in older cases, abscess or softening of the brain may be found. Concussion is often complicated with other effects of violence upon the brain, and a degree of it attends all serious injuries of the head. But when there is fracture of the skull, the concussion is generally not so great as when there is none, because the force of the blow is broken by the fracture.

Effusion of blood within the cranium, either upon the surface of the brain, into its substance, or into the ventricles, from lacerations of the brain, or the rupture of one or more blood-vessels, by a fractured bone, or by separation of its membranes, is a very common cause of death, from violence producing commotion of the brain ; and this has even been found to occur when there was no external mark of injury upon the head.*

The symptoms attending extravasation of blood within the cranium are various ; they may come on suddenly, or slowly and gradually, according to the degree and progress of the effusion. The symptoms are generally those of compression of the brain, with insensibility and coma, and sometimes accompanied with convulsions. When these symptoms come on, some time after the patient has in some degree recovered from the immediate shock of the injury, and without the existence either of inflammation or depressed fracture, effusion of blood may in general be regarded as the cause of them.

CASE 22.—Alexander Tait, aged 33, the driver of a stage-coach, was admitted into the Royal Infirmary under my care, on account of an injury by having fallen from his driving box upon the street three hours previously. When admitted, he was in a state of complete insensibility and coma. But it was stated by his wife that, shortly after the injury, he recovered so far as to be able to speak to her upon several topics quite distinctly. He then gradually became insensible, in which state he was brought to the Infirmary, his breathing stertorous, pu-

* See Cases 33 and 34 by Pott, also Case of Tait, below.

pils dilated, pulse slow and intermitting. There was a slight mark of contusion on the left temple. No fracture of the skull was perceptible. He became gradually worse, and died about eleven hours after the injury. Upon dissection, about four ounces of coagulated blood were found effused between the skull and dura mater, on the left side from rupture of the meningeal artery. There was also a fracture at the base of the cranium, and a laceration of a portion of the interior of the brain, at which part there was a coagulum of effused blood, and extravasation into the ruptured substance of the brain.'

Effusion of blood from ruptured vessels, after concussion, generally takes place slowly, on account of the depressed state of the circulation. Very little blood is poured out at first, but as reaction takes place, the quantity effused becomes greater, and the symptoms of it come on and increase. In one case mentioned by Sir B. Brodie, secondary hæmorrhage appeared to take place on the fourth day after an injury, and proved almost immediately fatal.

The effusion of blood within the cranium is not always fatal. The degree of it which proves fatal is very various, depending on the part of the brain where it is situated, and which is most compressed by its presence. The effusion may take place quickly, immediately after the receipt of the injury, or slowly, for two or three days, or it may not prove fatal till a later period.

CASE 23.—John Boyd, a stout, healthy old man, ninety-one years of age, was found lying on the middle of the road in front of his house, with a severe contusion on the back of his head. He was carried home in a state of insensibility. In about a quarter of an hour he became sensible, and continued so till his death, which happened nine days after the receipt of the injury. On inspection Dr Craigie and I found an ecchymosed wound at the posterior part of the cranium. There was also a fracture at the base of the skull commencing at the lambdoidal suture, and proceeding laterally and forwards through the temporal bone, and a great effusion of coagulated blood beneath the dura mater, covering the left side of the

brain and its base. The fracture crossed the lateral sinus, which seemed ruptured in consequence, and hence the effused blood. There were some thickened and ossified points in the coats of the arteries at the base of the brain, but they were not ruptured. In this case it is highly probable that the internal hæmorrhage which proved fatal only took place shortly before death. A rupture of the sinus had taken place by the injury, but the hæmorrhage had been stayed for a time, and again recurred, so as to prove fatal.

The frequency of effusion of blood taking place within the cranium, without any injury, leads to a very important medico-legal question in many cases of sudden death, Whether the effusion of blood has arisen from violence, or from natural disease?

In some cases, particularly where the vessels of the brain are in a diseased state, or where there is a tendency to softening of the brain, continued intoxication, or a sudden burst of passion, or struggling with another person, may occasion the bursting of a bloodvessel within the head, and cause a fatal effusion of blood.

CASE 24.—A woman who had been much addicted to drinking, and who had been struck by her husband in a quarrel after a potation, soon after died. Several slight marks of contusions were found on the head, and blood extravasated at the base of the brain from a ruptured artery.

Sir C. Bell gave it as his opinion that the rupture might have taken place from a slight injury or shock in this case, in consequence of the morbid predisposition to it by the habits of the individual, and the excitement from the struggle with her husband.—(Shaw's Manual of Anatomy.)

CASE 25.—The following case of death from violent shock and excitement to the Nervous System, appears to me to be somewhat analogous.

A girl of about six years of age, while playing, was locked within a cellar by a mischievous boy. For some time she screamed very much from the fright she was thrown into, till being relieved from her situation, she played about in her usual way during the afternoon. Next day she began to complain, and remain-

ed in bed ; she had headach, and was sick and feverish. On the second day she became insensible, comatose, her breathing became laborious, and on the following morning she died. She had been previously remarkably stout and healthy.

No post-mortem inspection took place. But there can be very little doubt, I conceive, of a bloodvessel having burst in the head, which caused a gradual effusion of blood, and proved fatal ; since in this case there was not time for inflammation causing fatal effusion to have taken place.

Such cases are attended with considerable difficulty to the medical jurist. But a correct opinion may often be arrived at by attention to the following circumstances.

Spontaneous bursting of a bloodvessel within the head, very rarely gives rise to effusion of blood *upon the surface* of the brain. Dr Abercrombie mentions two cases where this happened.

CASE 26.—In one of these the patient was 35 years of age, addicted to the use of ardent spirits, and was seized, in a fit of intoxication, with apoplexy, attended by convulsions, of which he died in a few hours. A coagulum of five ounces of blood was found between the dura mater and arachnoid coat covering the right hemisphere of the brain.—(Loc. Cit. p. 235.)

CASE 27.—In the 42d vol. of Edin. Med. and Sur. Journal, there is a case of apoplexy, in consequence of effusion of blood from aneurism, and rupture of the middle meningeal artery, detailed by Dr J. Gairdner. The patient was a tradesman aged 48. About five weeks before he died, he had experienced headach and giddiness, with some imperfection of vision. This state was followed by loss of muscular power, insensibility and coma, but no stertor of the breathing. On dissection, there was a sac in the course of the middle meningeal artery, containing about four ounces of coagulated blood.

CASE 28.—In the same volume there is another case of hæmorrhage from the cerebral membranes, the pia mater and choroid plexus, causing symptoms of apoplexy, by Dr John Scott, which was read before the Medico-Chirurgical Society of Edinburgh. The patient was a young gentleman 19 years

of age. On the 30th March 1834, he was seized with what was considered epilepsy, which was followed by convulsions, coma, insensibility, slow breathing, and death, three or four hours after the convulsions had come on.

Upon dissection, the corpus callosum was covered with a thin coating of coagulated blood ; the same extended backwards and downwards to the base of the brain, cerebellum, pons Varolii, and medulla oblongata. The ventricles were also distended with clotted blood. And a portion of the brain anterior to the corpora striata was in a softened state.

CASE 29.—Another case is mentioned by Mr W. Brown, of a child aged 9, who died after a few days' illness, from head symptoms, convulsions, and coma. There was coagulated blood in each of the ventricles, spread in a considerable quantity on the base of the cranium ; and it also filled the sheath of the spinal cord nearly to its termination, without any apparent disease in the substance of the brain or cord.

CASE 30.—I dissected an apoplectic patient a few years ago, where the fatal effusion of blood proceeded into the base of the cranium from the rupture of a diseased artery, at the circle of Willis. The preparation is in the Museum of the College of Surgeons.

But the rare occurrence of this circumstance, must not be considered a very strong argument to draw so important an inference from, viz. that an effusion on the surface of the brain must in general have been caused by violence ; for, what has happened in one may happen in other cases. Taken along with other circumstances, however, it is certainly of some weight. On the other hand, when effusion of blood is situated on the surface of the brain, especially between the dura mater and skull, and if it is situated beneath, or opposite to, an external mark of violence, or *contre coup*, there is certainly a strong presumption in favour of its having been occasioned by the blow. But if the effusion is situated in the interior of the brain, and particularly if it is surrounded by congested vessels, or softening and disorganization of the brain, or if the arteries of the brain are in a diseased state, even although there is a mark

of external injury, there is reason to conclude that it has taken place from disease, as the injury may have been caused by a fall in consequence of the disease.

CASE 31.—A woman about 60 years of age, who lived alone, having been found dead in bed, with marks of external injury upon her head, was suspected of having been murdered. But some of her neighbours declared that (as had happened several times before) they having found her lying in the stair leading to her house, as they supposed in a state of intoxication, carried her home, and laid her in bed to sleep off her libation. In the morning, however, she was found dead. The truth of this account was confirmed by dissection; which also established that, in place of violence, her death had been occasioned by natural disease. For the interior of the brain was occupied by a large cyst filled with grumous blood, surrounded by a softened state of the brain. The external marks of violence upon the head had been occasioned by the fall down stairs, when the patient had been seized with the apoplectic fit.

The effusion of blood from injury may also be situated in the interior of the brain, as in the two cases of commotion of the brain (38 and 40,) mentioned by Mr Pott, in which there was a coagulum of blood within the ventricles, and in the case of Alexander Tait, page 15.

The age and previous history of the patient, as to habit and disease, are also to be taken into account, in forming an opinion. Spontaneous hæmorrhage in the head seldom or never takes place in persons under middle age; intemperate persons are most liable to it, more especially if any disease of the head has appeared previously, as, for example, symptoms of affection of the head before receiving a blow upon it. Effusion of blood, however, from this injury is not precluded by those appearances, as both may exist together.

In other cases, when the brain is not directly affected, but when sudden death takes place in a similar way to concussion, viz. as by the effect of lightning—of intense cold—a blow on the stomach, or the removal of pressure from the brain, to

which it has been accustomed, or extensive injuries of other parts of the body, there is no loss of substance, no disorganization, but death from depression of the circulation.*

“After death from affection of the nervous system thus directly influencing circulation, the heart is sometimes found, especially in the most sudden cases, quite empty of blood (the cause of which appearance is doubtful), in other cases distended; but with no decided difference as to the quantity of blood in its right and left sides.”†

Before concluding this subject, I may remark that a question of some importance to the medical jurist sometimes occurs in cases of concussion of the brain, as to the validity of a dying declaration of the injured individual. It has been found that persons who have suffered a severe concussion of the brain and recovered their sensibility, have no recollection of what took place immediately previous to or after the injury.‡

The testimony, therefore, regarding events that preceded the blow, must always be received with caution; and only considered correct, when it is confirmed by other evidence.

B. *Of Compression and Laceration of the Brain—Fractures of Cranium.*

Compression of the brain from effusion of blood within the cranium, and laceration of the brain, from concussion, have already been treated of in the preceding section. The injuries of the brain to be described here, therefore, are those connected with fractures of the cranium.

Fractures of the cranium, whether simple or compound, frequently produce compression of the brain, by a portion of the bone being depressed from its natural position, so as to make pressure upon the brain. Even a portion of the inner table of the skull may be depressed without any injury of the external table.§ In cases of this nature, the membranes and substance

* See Alison's Pathology, p. 12.

† Ibid. p. 8.

‡ See Cases illustrating this given by Sir B. Brodie. Medico-Chirurgical Transactions, vol. xiv. p. 339.

§ See Pott, cases 42, 43. Also Cases by Brodie, Medico-Chirurgical Transactions, vol. xiv. p. 331.

of the brain may also be wounded or lacerated, either by depressed portions of bone or other foreign bodies. Effusion of blood may also take place within the cranium, causing or aggravating symptoms of compressed brain.

In simple compression of the brain by depressed fracture, the same symptoms take place as already described in cases of compression from effusion of blood. These consist of insensibility—coma, from which the patient cannot in general be roused—palsy—slow, but otherwise natural pulse—stertorous breathing—dilated pupils; these symptoms are often followed by sudden death, but more commonly this takes place after the lapse of one, two, or several days. The coma, in cases of slight compression, may not be so profound as to prevent the patient from being roused, but he again relapses.

When wound or laceration of the brain or its membranes has taken place, whether with or without effusion of blood, if the patient does not die immediately from the severity of the injury, symptoms of inflammation followed by effusion of lymph, or abscess of the brain, may take place and prove fatal; in some cases rapidly; but in general only after the lapse of a considerable interval. It is in this way, by inflammation, that the majority of wounds of the brain are fatal.* In such cases the compression may have been removed, by elevating the depressed bone, or the evacuation of effused blood, before the inflammation supervened.

Fractures of the base of the cranium are highly dangerous; not because they are attended with depression of bone upon the brain, but because they are generally, indeed almost invariably, accompanied with a laceration of the brain at its base, or an effusion of blood which compresses it at this vital part, where most of the nerves take their rise. Fractures at the base of the cranium take place chiefly from reaction of the occiput upon the atlas, by violence applied to the top of the head. Injurious pressure on *the brain* may also occur from the fractured bones being somewhat displaced. In cases of fractured base, bleeding from the ears is often observed; a circum-

* Brodie, p. 362.

stance which Sir B. Brodie attributes to injury of the lateral sinuses.*

It is a circumstance particularly deserving the attention of the medical jurist, that a fracture of the skull, and particularly of the base, may not be situated at the part where the violence has been inflicted. It is also worthy of remark that, where the individual has died from effusion of blood within the cranium, the existence of a fracture of the skull renders external violence the most probable cause of it ; unless there is obvious marks of disease, and of the fracture having been occasioned by the individual falling down in an apoplectic fit, or of its having happened after death.

A fracture of the skull from a blow may also appear much greater than could have been anticipated from the blow inflicted.

CASE 32.—A man who was murdered near Kelso a few years ago by a severe blow on the head with a bludgeon, had a fracture of the skull which nearly traversed the whole circumference of the cranium.

In other cases, it may be as remarkable that no fracture exists. In short, such fractures seem often disproportioned to the violence sustained. This circumstance arises partly from the degree of thickness of the skull—the part struck—the force and the weapon employed. Upon this, however, I shall have occasion to remark more fully in a subsequent part of this treatise.

The brain can suffer with impunity very considerable compression laterally, but when the medulla oblongata or the origins of the nerves are compressed, fatal symptoms generally ensue. Hence extravasation may exist for some time without causing morbid symptoms or death. In the dead body it is always in clots; and a fatal effusion is known by the symptoms before death, corresponding with the situation and degree of pressure caused by the extravasated blood.

In some cases the effects of compression of the brain from a

* Medical Chirurgical Transactions, vol. xiv. p. 334.

depressed fracture, do not appear at first, in consequence of the pressure of the depressed bone no more than counterbalancing the depressing effect of commotion on the circulation.

Extensive laceration of the brain, as by a blow from an axe or gun-shot, generally proves instantly fatal, and the individual may not be able to stir from the spot after its infliction.

CASES.—The five following cases are examples of severe injuries of this class, where the brain was lacerated to a very great extent :—1. Widow Geddes, aged about 65 years, in December 1831, received a severe blow upon the left side of the head, which was inflicted with a spade. The sharp edge of the spade had entered the cranium at the upper part of the ear, and detached the whole of the upper part of the cranium and the parts of the brain it contained. This injury caused almost instant death. The wound had been inflicted when she was sitting at her cottage window knitting a stocking. In a few minutes afterwards, she was found by her neighbours lying on the floor, with the stocking in her hand and the worsted round her finger, so that her death had been instantaneous. 2. Mrs M'Gibbon, 2d October 1831, was killed by her nephew by repeated blows upon the temple by means of an axe. The brain was much lacerated by a great number of fragments of the skull having been driven in upon it. The frontal, parietal, temporal, sphenoidal, and malar bones of the left side, and the lower jaw, were those chiefly fractured; and thirteen portions of bone were picked out from the substance of the brain. The brain was extensively lacerated, and covered with blood. The wounds had been inflicted when she was lying asleep on a sofa, and she had never stirred from it. 3. Mrs Stewart, Dunkeld, was killed by her husband, October 1832, by repeated blows upon the forehead with an axe, which caused immediate death by fracture of the skull and laceration of the brain. 4. Millie, in Fife, was murdered by Henderson, his workman, in July 1830, by fracture of skull and laceration of the brain; broken fragments of the bone having been driven into its substance; which injury seemed to have been inflicted by a hammer. 5. Neilson, at Cambusnethan, Lanarkshire, was murdered, October

1832, by John Barclay, by extensive fracture of skull and laceration of the brain, inflicted by a hammer, and which caused immediate death.

In less severe lacerations or wounds of the brain, the individual may die suddenly ; or he may go about pretty well for a time, and may then be seized with symptoms of inflammation terminating in fatal consequences. Morgagni mentions a case of this kind, in which a sharp body penetrated the brain to nearly the lateral ventricle ; and another will be found in Hennen's Military Surgery. The first went about quite well for three days, when inflammation and suppuration took place. The other died instantly.*

CASE 33.—Alexander M'Ara was killed by a blow inflicted by his brother James M'Ara, December 1810, upon the forehead and nose, by means of a large pair of smithy tongs, which fractured the orbital plates and ethmoid bone, drove some portions of these into the substance of the brain, and caused a considerable effusion of blood into the base of the skull. He died on the fourth day, from "inflammation and suppuration on the surface of the brain opposite to the external wound." In this case the removal of the depressed portions of bone would have been impracticable.

C. Of Inflammation of the Brain the consequence of Injuries.

Injuries of the brain, when not immediately fatal, are generally followed by inflammation and its consequences. These effects frequently render such injuries dangerous and fatal, which were not so previously. Fatal inflammation of the brain follows slight injuries not only of this organ, but even those of its tegumentary or bony coverings.

The most common injuries of the brain, in which fatal inflammation supervenes, are in commotion of the brain, and in lacerations or wounds of it, but more particularly when any foreign body has penetrated into, and been retained within the cranium, such as portions of the skull which are broken and

* Brodie, p. 360.

forced in upon the brain, or the contents of fire-arms lodged within the head.

The symptoms which indicate inflammation of the brain or its membranes, are in general fever, pain of head, flushing of face, delirium, quick and sharp pulse, and when the inflammation has advanced to the effusion of lymph or suppuration, these symptoms are followed by rigor, convulsions, stupor, insensibility, coma, and death.

The interval between the receipt of an injury and the manifestation of symptoms of inflammation of the brain, is very various in different cases. In some cases, it takes place after the interval of one or two days; in others, after an interval of one or two weeks; while in a third class of cases, inflammation may be insidiously proceeding for several months, without distinct indications of its existence till near the approach of a fatal termination taking place.*

Upon the authority of Sir A. Cooper and others, it may be asserted that inflammation of the brain after injuries does not in general supervene for about a week after the accident; nor is the patient to be considered safe or out of danger till two or three weeks afterwards.†

CASE 34.—James Inglis, a soldier, was tried at Edinburgh, 28th August 1810, for the murder of Simon Simonson, a prisoner at whom he had fired in the discharge of his duty. The bullet had caused a wound of the cranium above the left eye, through which a portion of the brain and a great quantity of blood were discharged, as well as nine pieces of fractured bone. The patient lived for three days. Other two pieces of bone were found deeply imbedded in the substance of the brain.

CASE 35.—Robert M'Anally was tried at Glasgow, 27th April 1836, for the murder of his father, by wounding him and fracturing his skull on the 20th March, by which he died on the 23d of same month. The father and son quarrelled and came to blows, the former with a cart-rack pin in his hand, the latter with the poker. The son hit the father such a heavy blow by throwing the poker at him, that the nob. or head of

* See cases already mentioned, pages 46. 47. 48. † Lectures on Surgery.

the poker stuck fast in his forehead, and was with some difficulty withdrawn. The father asked those near him to withdraw it, and he afterwards walked to the Infirmary.

On dissection, besides a wound over the left eye, the frontal bone was fractured, and a portion forced in upon the brain. The brain was inflamed, which was the cause of death.

M^cAnally was convicted of culpable homicide, and imprisoned for nine months.*

CASE 36.—In July 1833, I inspected the body of a child Fitzpatrick, aged 6, where the dura mater and brain had been lacerated to a small extent by a fracture with depressed portion of bone, occasioned by a heavy stone thrown at him. The child went about pretty well for several weeks, and then was taken ill with symptoms of inflammation of brain, and died suddenly about six weeks after the injury; there was a large abscess in the substance of the brain near the injured part. Here the irritation of the depressed bone, as well as the laceration, produced the fatal inflammation.

CASE 37.—J. Bell was tried at Edinburgh, November 1836, for the murder of J. Kerr, aged 22, by having struck him on the forehead with a hoe. The blow caused a compound, much comminuted, and depressed fracture of the skull. On the day after receiving the injury, Kerr was brought to the Royal Infirmary. He walked up stairs to his bed, and did not seem very ill. Symptoms of inflammation came on, and he died seven days after the injury. On dissection there was inflammation of the membranes, and an abscess in the substance of the brain, below the seat of the injury.

CASE 38.—A young man about seventeen years of age, fell from the mast into the hold of a ship upon the Clyde, in September 1835. By this fall he received a severe compound depressed fracture of the upper part of the right parietal bone. He was taken to the Infirmary of Glasgow, where he was trephined and made a slow recovery, so that he could go about, the wound of his head continuing to discharge. About the end of September 1836 (about a year after the injury) he was admitted into the Royal Infirmary of Edinburgh, under the

* Swinton's Reports of Justiciary Court.

care of Professor Lizars. There was then an opening through the scalp and cranium, leading to a sinus and abscess in the substance of the brain. He suffered a renewed attack of inflammation, followed by insensibility and coma. The opening was enlarged to afford exit to a considerable quantity of matter which escaped, but he soon afterwards died. The abscess of the brain was found to communicate with the ventricle.

CASE 39.—A case somewhat similar is mentioned by Mr Abernethy. The patient, a coachman 23 years of age, was thrown from his box, June 3. 1802, and received a fracture of the right parietal bone, a small portion of which was depressed. He soon got perfectly well, and remained so for two months, when he returned to the hospital. The wound was not healed; there was a suppuration under the integuments, and a portion of the bone loose, which was extracted. He continued better and worse till the 19th October, when he died. A large abscess was found occupying nearly the whole right hemisphere of the brain.

CASES 40 and 41.—Mr Travers mentions the case of a man who died four months after an injury, “from a fall upon the curb-stone, of a suppuration on the dura mater, not exceeding a half-crown-piece in diameter; another from a tumour as big as a pigeon’s egg, formed on the surface of the left hemisphere of the cerebrum, after a blow with a brick-bat received six months before.”*

CASE 41.—William Watt, aged 10, had the birch end of a scavenger’s broom thrust into his face two or three times by one of his companions. By this he was so stunned that he lay down, and was carried home in a state of stupor. He afterwards complained of violent pain in the eyeball and forehead. Symptoms of inflammation and fever supervened, followed by coma, insensibility, and convulsions. These, by active treatment, subsided; suppuration took place in the orbit, but he again relapsed and died seventeen days after the accident. On dissection, there was an opening in the orbital plate of the frontal bone, which extended into the brain, and an effusion of lymph and pus at the base of the brain. The left ventricle

* Travers, vol. i. p. 72.

contained three ounces of pus, and communicated with the wound in the orbit. There was also considerable softening and disorganization of the brain. A small portion was partially separated from the orbital plate and projected upwards.*

CASE 42.—A child is mentioned by Sir A. Cooper to have fractured the orbital plate of the frontal bone, and wounded the dura mater and brain, by accidentally thrusting the points of scissars into the orbit, above the eyeball. On the tenth day symptoms of inflammation and compression of brain came on, and the child died. (Surgical Lectures.)

CASE 43.—R. Bannister, whose case was examined by Dr Corkindale at Glasgow, in March 1824, received a severe blow on the nose, which occasioned fractures of the nasal bones and hæmorrhage, which lasted three days. During the first two weeks he appeared to recover, but was after this seized with pain of head—became worse, and died about nine weeks after receiving the injury. There was copious inflammatory effusion upon the surface of the brain, particularly at the part behind the nose.

CASE 44.—John Kilgour was tried at Ayr in 1827, for killing a girl by the shot of a fowling-piece fired towards the high road. In this case only one of the lead-drops was found to have penetrated the child's eye, orbital plate, and brain; while the others scarcely penetrated the skin. She died on the third day. Kilgour was acquitted, as the wound appeared to have been quite accidental.

CASE 45.—A child was brought to Sir Astley Cooper having a small wound of the scalp, which it had received when at play from the beak of a cock eight days previously. The wound from which matter was discharging was enlarged. A circular opening was found through the bone, as also a corresponding wound through the membranes of the brain. The symptoms of irritation were succeeded by those of compression, and the child died three days after the operation. On dissection the membranes of the brain were inflamed around the wound, and there was an abscess between the pia mater and the brain.†

* See case which occurred to Dr Moir, by Dr Scott. *Edinburgh Medical and Surgical Journal*, vol. xlii. p. 263. † Cooper's *Lectures on Surgery*.

CASE 46.—For the following case, which is very similar to the one preceding, I am indebted to Mr Reid, surgeon at Markinch, Fife. — Deas, aged two years, on 17th March 1834, received a wound about the middle of the left parietal bone, by a blow from the bill or spur of a fighting cock. For eight days subsequently this boy ran about as usual ; but on the ninth day he became feverish, and had frequent attacks of vomiting till the thirteenth day, when Mr Reid was first called to see him ; the symptoms became aggravated and his breathing laborious. It was then discovered that a portion of the skull had been fractured and somewhat depressed upon the brain. The wound was enlarged, and the depressed portion of bone removed, but the child died in seven hours afterwards. An examination of the head was not permitted.

“ Dessault quotes an instance of a ball being lodged in the substance of the brain for four months, during which, it would appear, that the person was not incommoded, though at the end of that time he died convulsed.”*

Several of these cases have been inserted to shew how injuries of the head, which at first did not seem dangerous, and from which the patient appeared to have recovered, became dangerous and even fatal after the lapse of a considerable interval, but which may, nevertheless, be distinctly traced to the injury as the cause of death ; thereby rendering the culpability, in cases of intentional injury, the same as if death had occurred more immediately after its infliction. The longer the interval is, however, between the receipt of the injury and death, there is no doubt greater room for the operation of modifying circumstances, which may be alleged to have aggravated the case, and are therefore pleaded in exculpation, than in cases of sudden death.

The subject under consideration also bears upon another point of great importance in a legal point of view. It has often happened that an individual A has assaulted another individual B, and given him a blow upon the head. B does not appear to be much the worse of the injury, so that in a few

* Cooper on Fractures. &c.

days A is taken to the police court, or before the sitting Magistrate, and is tried for the assault. After an interval of a few days or weeks, however, B is taken ill with inflammation of the brain, and dies from the effects of the injury. A is therefore again laid hold of, and indicted to stand trial for murder. By a law of the land, no person can be twice tried for the same crime, so that a difference of opinion has been given in cases of this kind. It being maintained by some that the crime of murder does not exist till the injured individual dies, and therefore the prisoner had been previously tried for another crime (assault), and could not have been tried for murder; hence the crime charged being different from the previous one, the law does not apply.* But as both charges were made upon the same assault, the case seems very doubtful in the present state of the law. This shews how important the greatest caution is on the part of a medical jurist, in giving an opinion on a case of injury of the head, and declaring the individual to be in no danger. There may be danger, though it is not apparent from the absence of symptoms; and as it is impossible always to give a correct and decided opinion, the law should make allowance for this imperfection in our science, and provide for the possibility of what at first appeared to be an assault without dangerous consequences, becoming a case of murder, in order that the guilty person may not escape punishment.

The accession of inflammation after injuries of the head, depends very much, in many cases, not only on the degree and kind of injury, but upon the state of the patient's constitution, his care of himself, and the proper treatment of his medical attendant. This is a circumstance which it is of great importance that the medical jurist should keep in view, for by such causes as these, injuries not otherwise necessarily fatal, often unexpectedly become so. Such circumstances, when they occur, should always have their due influence with legal authorities and juries in altering the character of homicide, in so far as relates to the culpability of the accused, and will be fully

* See case of John Robertson, Glasgow, tried at Edinburgh, 1832, p. 47, and Cobb or Fairweather, Dundee, tried at Edinburgh, 21st November 1836. These cases will be afterwards referred to when treating of exculpatory pleas.

considered at a subsequent part of this treatise. But when no such circumstances occur to palliate the culpability of the accused, he is held responsible for the reckless infliction of an injury, which, although apparently slight at first, afterwards proves fatal. In cases of this kind, it is also sometimes difficult to draw a distinction between the effects of injury and natural disease.

When the brain is wounded by a puncture from the orbit, inflammation, followed by effusion of purulent matter into the brain and its membranes, has also been shewn to produce the death of the patient. Professor Orfila mentions several cases of this kind. One of the individuals in whom it occurred, died at the end of three months after the injury. Several similar cases are also mentioned by Beck in his *Medical Jurisprudence*. One of these is that of Macklin, the comedian, who was tried for the murder of another actor, by plunging the point of a stick at him, which entered the brain through the orbit. Another is the case of Richard Carse, tried for murder, he having beaten the deceased with a wooden dish, a portion of which was broken off and entered the brain through the orbit, and caused death in a few days. The splinter was taken out after death.

“In several instances,” says Dr Smith, “individuals have been tried in this country for killing by the accidental thrust of a cane through the orbit into the head.”*

SECTION III.—*Of Injuries of the Spinal Chord.*

Injuries which wound, divide across, compress, or disorganize any part of the spinal chord, in general prove fatal. And they do so either immediately or after an interval of more or less duration, according to the situation, extent, and nature of the injury.

When the spinal chord is deeply penetrated, or injured at its upper part, death takes place immediately. But if the lesion is superficial, and at a point lower down in the chord, the lesion, though not immediately fatal, is followed by loss of

* *Forensic Medicine*, p. 273.

power and feeling below the injured part, by which the patient sooner or later dies.

Wounds of the medulla oblongata, or pressure upon it occasioned by effusion of blood, or fracture and dislocation of the vertebræ, prove instantly fatal, in consequence of the circulation and respiration being brought to a stand. As the penetration of this part, even with a very small instrument, speedily occasions death, this would be a mode of committing murder which would prove very difficult to be detected.

In many cases of injury of the head, effusion of blood at the base of the cranium, making pressure on the medulla oblongata, is the cause of sudden death.

CASE 47.—Dr Abercrombie gives a case, communicated to him by Dr Hennen, of a private of the 10th Hussars who was seized with giddiness and fell down. When raised he vomited, and complained of violent headach and faintness. Upon being carried to hospital, he drew several deep inspirations and died in a few minutes. On dissection the vessels of the cerebellum were turgid, and on removing it, there was a coagulum of two ounces of blood under it surrounding the foramen magnum.*

Dr Smith mentions the case of “a gentleman in the neighbourhood of Bedford who died suddenly several weeks after a fall from his horse, from the immediate effects of which he had recovered. On examining the head, a vessel was found to have given way, and to have caused extravasation in the base of the cranium.” †

Several other cases of this kind have been already detailed; I shall therefore now proceed to relate a few cases of injuries of the spinal chord, in illustration of the subjects of the present section.

CASE 48.—A case has been recorded in the *Edinburgh Medical and Surgical Journal*, vol. xlii. by Dr William Thomson, of a gentleman who was unexpectedly found dead in bed, in consequence of an accidental and spontaneous dislocation of the second cervical vertebra, by which the processus dentatus had

* Abercrombie on Brain, &c. p. 238.

† Smith's For. Med. p. 271.

been made to press forcibly on the medulla oblongata. Dr Thomson also mentions another similar case, which occurred to the late Mr Wilson of London. "Sir Charles Bell has recorded the case of a patient who died suddenly some weeks after having received an injury on the head. On dissection, a fracture was discovered in the base of the skull, and the foramen magnum having been thereby roughened, a sudden turn of the head had forced a spiculum of bone into the spinal marrow. This was fairly to be considered the immediate cause of death, and is by no means without parallel."*

CASES 49 and 50.—Sir A. Cooper mentions the case of a patient in St Thomas's Hospital, who, while eating her dinner, fell suddenly forward and died. The dentiform process was broken from the second cervical vertebra, and pressed upon the spinal chord.—The same author gives the case of a boy, three years of age, who, by a severe fall, injured his neck. Symptoms of affection of the spinal chord continued for about twelve months, when he died. The first cervical vertebra was broken across, and the dentiform process having lost its support, compressed the spinal marrow on the slightest movement of the head.†

CASE 51.—Robert Reid was tried at Edinburgh, 29th June 1835, for the murder of his wife, who, though previously in delicate health, had died suddenly in consequence of a fracture of the processus dentatus and dislocation of the neck. The guilt of Reid was not established, but from the evidence of the medical gentlemen who examined the body of Mrs Reid, it appeared that there was ecchymosis of the neck, fracture of the processus dentatus, and dislocation of the first and second vertebræ of the neck; also that the bones were not diseased.‡ In this case, however, doubts were started as to whether the fracture had taken place from violence, or spontaneously from disease. This obtained considerable weight from the imperfect manner in which the inspection of the body had been conducted. The merits of this case will be more fully considered in a subsequent chapter.

CASE 52.—"A man mentioned by Sir Charles Bell, was

* Smith's For. Med.

† Treatise on Fractures, &c.

‡ See Report of this case published by authority, 1835.

making a violent effort to propel a wheelbarrow from the street upon the raised foot pavement, when the wheelbarrow suddenly went from before him, and he fell with his chin upon the curb stone. He was dead in a few seconds ; the *processus dentatus* was found to have crushed the spinal chord, the ligaments having given way.”*

CASE 53.—Allan Grant and others were tried at Edinburgh, 5th March 1827, for the robbery and murder of Mark Dow, a shoemaker. Dow, when returning from an incorporation dinner, and not quite sober, had been decoyed into a low public-house by several persons of reputed bad character. After remaining for some time, he left the house followed by some of its inmates, and was shortly afterwards found dead, and denuded of his clothes, &c. at the foot of a flight of steps which led down to it from another street. Upon dissection, Messrs Newbigging and Brown found two slight marks of injury upon the head, and a fracture across the fourth cervical vertebra (which must have been attended with displacement, and compression or rupture of the spinal chord). To this cause they ascribed the death of Dow, there being no injury or disease of any other part. They were further of opinion, that this injury could only have taken place either from a very heavy body falling upon the neck, or a fall down stairs. The public prosecutor departed from the charge of murder.†

The division or compression of the spinal chord in the neck, or even below it, arrests both the respiration and the action of the heart. These functions may go on in a deranged state for a time, as for some hours, but coldness and depression continue to increase, and death ensues. Foderé mentions a case from Jaeger, of a person who was struck on the neck by a waggon with such violence, that both his upper and lower extremities became paralyzed. He died in eighteen hours. On dissection, the sixth cervical vertebra was fractured, and four ounces of blood extravasated at the part.

CASE 54.—John Gray, aged 22, a chimney-sweeper, was

* Abercrombie on Diseases of the Brain and Spinal Cord, p. 389.

† Syme's Reports of Justiciary Court, p. 136.

admitted into the Royal Infirmary under my care, on the 16th April 1836, in consequence of having received an injury of his spine, by a fall from a height of between thirty and forty feet, two hours previously. He had fallen upon the pavement, but the concussion stunned him so much, that he could not give any account of his fall. There was a projection and slight curvature of the spine at the seventh and eighth dorsal vertebræ, accompanied with insensibility, and loss of motion of those parts of the body below the injury. His respiration was frequent, difficult, and painful. These symptoms continued with slight variations of degree till 7th May, when he died, being three weeks from the receipt of the injury. On dissection, the seventh dorsal vertebra was found fractured transversely through its body, and the upper portion displaced forwards, the lower portion backwards. In consequence of this displacement, the spinal chord was completely torn across, and the spinous process of the vertebra above the rupture had become inserted in the lower orifice of the spinal canal.

CASE 55.—James Bell, a private in the 5th Dragoon Guards, was tried 22d June 1835, for the murder of Serjeant-major Moorhead, by having fired a pistol at him, the bullet from which was lodged in his back, and caused death by having divided across the spinal chord. This case was reported on by Sir George Ballingall and Dr T. G. Logan, who had seen Serjeant-major Moorhead, and inspected his body after death. Immediately on receiving the wound, which was on 17th May, he lost the power of his lower extremities. On the 22d, fever with delirium supervened, and he died on the 25th. On dissection, it was found “that the ball had entered between the ninth and tenth dorsal vertebræ, fracturing the spinous processes of both, and lodged in the spinal marrow, which it had nearly divided.”

CASE 56.—The late Sir A. Boswell, who fell in a duel in 1822, was wounded by the bullet of his antagonist entering through the middle of the right clavicle, and wounding the spinal chord, by which he lost the power of all the parts below, and died next day.

CASE 57.—In the case of Maxwell, already mentioned (p. 43), there was the mark of a severe contusion on the loins, and blood extravasated throughout the whole course of the spinal canal.

“ A man received a violent blow on the three inferior lumbar vertebræ, by a log of wood which fell upon him ; he died in four hours. Extravasated blood was found in the spinal canal, but the vertebræ were entire, and the chord was healthy.”*

CASE 58.—A boy, aged 12, received a violent jerk of his neck by a cord which was thrown over his head as he was swinging forward in a swing. He felt no bad effects at the time, but afterwards his limbs became weak, and his neck stiff. In eleven months this increased to palsy, and he died at the end of twelve months after the injury. A large quantity of extravasated blood was found in the spinal canal, betwixt the bone and theca vertebralis.†

Dr Abercrombie also relates several cases of spontaneous extravasation† of blood upon the spinal chord, which proved very suddenly fatal.

Injuries of the spinal chord are not often the subjects of medico-legal investigation ; this part being so well protected from external violence. But some cases of this nature have occurred, as from gun-shot wounds, falls, injuries from carriage-wheels passing over the body, and the like. Upon dissection, compression, wound, or laceration with effusion of blood, are observed in the cases of recent injury ; while extravasation of blood, softening of the chord, inflammatory effusion, and suppuration, are observed in those cases of more lingering death.

The fatal termination of such injuries of the spine as do not cause immediate death, arises from paralysis and insensibility of those parts of the body situated below the injured part ; and these prove fatal, according to Mr Travers, by occasioning a state of fever with depression, in consequence of the imperfectly performed functions of the palsied parts. In such cases, though the action of the heart, the respiration, the temperature, secretions, &c. are only gradually affected, yet experience proves that death is their inevitable termination. If the injury is situated below the origin of the phrenic nerves, the vital functions of respiration and circulation may not be immediate-

* Abercrombie on Brain, &c. from Morgagni, p. 364.

† Sir A. Cooper on Fractures, p. 493.

ly arrested. But its operation, though indirect, by causing languor and stagnation of the capillary circulation, and of the functions of the parts below the injury, is not less certain or less injurious ; so that death in place of being immediate may only take place after several weeks confinement.*

As it may be necessary to compare and connect the previous symptoms of cases of lesion of the spinal chord with the appearances on dissection, I subjoin the remarks of Mr Travers on the subject.

“As regards the organic affections,” says Mr T. “of the spinal chord and its membranes, including inflammation and all its notable appearances with the cranium, very interesting histories are on record, associating the symptoms of tetanus with spinal meningitis—pain of one region, and insensibility of another from the pressure of aneurismal and other tumors on the chord—convulsion, coma, spasm of the heart, and diaphragm with spinal effusions—convulsion, trismus, paralysis, diminution or exaltation of sensibility, with spinal apoplectic coagula and purulent matter ; and epilepsy as well as impaired sensibility and paralysis with changes of consistence in the marrow itself, as the ramollissement, or opposite condition of induration. If the cervical region is affected, difficult deglutition and dyspnœa ; if the dorsal, the disturbed action of the heart ; if the lumbar, paralysis of the bladder and rectum, and paraplegia are the symptoms associated. A state of spinal atrophy is met with in some cases of paraplegia, and in the new formations in and adjacent to the chord, the symptoms are intricately combined or isolated, according to the position and extent of interference with the organ. Messrs Ollivier, Serres, Hart, Abercrombie, Velpeau, Magendie, Gendrin, Leveillé, and others, are authorities for these interesting observations.” †

SECTION IV.—*Of Injuries of the Nervous Ramifications from the Brain and Spinal Chord.*

Severe contusions inflicted on different parts of the body cause sudden death by the impression made on the nervous

* Travers on Constitutional Irritation, vol. i. p. 172 ; also Cooper on Fractures.

† Travers on Constitutional Irritation, vol. ii. p. 36.

system, similar to that caused by a concussion of the brain or spinal chord. The suspension or derangement of the functions of the vital organs, such as the brain, heart, or lungs, cannot occur without being attended with very serious consequences. "If we suppose," says Mr Travers, "the brain or the respiratory muscles, or the heart, to be thus affected with a paralysis or suspension of function, death is not difficult to be accounted for." It is in this way that sudden death sometimes takes place from a blow on the head, or the pit of the stomach, without leaving any morbid appearances. "And whether an injury is inflicted on the head, or on the extremities; whether its effects are propagated from the brain to the limbs, or *vice versa*, from these to the brain, does not materially affect the construction of these cases." *

"A cause certainly adequate," says Dr Alison, "to produce fatal depression of the heart's action, and which no doubt acts through the nervous system in like manner as a concussion of the brain, is a violent blow on the abdomen, especially on the epigastrium, which has been supposed to act immediately on the great semilunar ganglion. A draught of cold water taken when the body is heated and exhausted by fatigue, has in some cases been instantaneously fatal in the same manner; and the concussion from a violent and extensive wound of any part of the abdomen is usually fatal in the same rapid way, independently of hæmorrhage, and before there is time for inflammation to be established."

Cases of sudden death from blows on the pit of the stomach are not unfrequent,† and several of them have been recorded. In these cases no morbid change of structure has been observed.

CASE 59.—Edward Jones, aged 21, was tried at Warwick, 8th August 1831, for manslaughter, having struck James Docher, with whom he quarrelled, several blows on the breast, and one on the pit of the stomach, by which he instantly fell down senseless and expired. On dissection, no morbid appear-

* Travers, vol. i. p. 162.

† Travers, Alison, Smith, Beck.

ances were found. Jones was found guilty, but recommended to mercy.

Persons drinking freely of cold water, iced water, or other cold beverages, in hot weather and when overheated, have often died suddenly, in consequence of the impression made on the nervous system. In some of these cases symptoms resembling those of cholera, have occurred some hours before death.*

Violent contusions inflicted on different parts of the body are sometimes followed by sudden death, partly in consequence of the shock given to the nervous system, and partly by the rupture of some of the internal organs, or other injuries of the extremities, which have caused collapse or depression of the action of the heart, from which the individuals do not rally.

“When local irritation exists in a high degree, it becomes transferred to the constitution, either immediately, *i. e.* independently of inflammation,—even before time enough has elapsed for its production—or after a short but variable interval, as a consequence of inflammation. As illustrations I may adduce the severest cases of disorganization, chemical and mechanical; as deep and extensive burns, crushed joints, compound dislocations, fractures attended with comminution of bone and dilaceration of muscles and blood-vessels.”†

Injuries which would not have been fatal individually, sometimes prove so by their combination or multiplicity.

CASE 60.—In the Museum of the College of Surgeons there is a specimen of fractured lower jaw, which was presented by Dr J. Campbell. It was that of a man who fell from his cart, by which the lower jaw was fractured in two places. The ossa nasi and four ribs were also fractured, and he died on the third day after the accident.

CASE 61.—Thomas Beveridge was tried at Edinburgh, 14th November 1831, and convicted of the murder of his wife, by having inflicted many severe contusions on different parts of her body, by blows with a poker and shovel, as also some slight

* Christison on Poisons.

† Travers, vol. i. p. 31.

cuts with a knife. She was immediately taken to the Royal Infirmary in a weak and insensible state, but died within half an hour after admission. Mr Liston and Dr Henderson, who inspected the body, reported several wounds of the scalp laying bare the bone; several contusions of different parts of the head, on the face, shoulder, arm, and hand, along with fracture of the bones of the fore-arm above the left wrist. There was very extensive ecchymosis at the contused parts; and the blood effused into the cellular tissue in these situations, must have amounted to several pounds. A small coagulum of extravasated blood was found on the surface of the brain. In this case death seems to have been occasioned by the depressing effect upon the nervous system from the contusions, loss of blood, and hæmorrhage into the cellular membrane.

Blows and other severe injuries upon the abdomen, causing rupture of the viscera, induce sudden death, chiefly by acting on the nervous system, in the manner above mentioned. In some of these cases, reaction does not take place, and the patient becomes pale, cold, and with a feeble and irregular pulse, the intellectual faculties remain entire, but within a few hours he becomes comatose and dies. The following cases illustrate this subject.

CASE 62.—A gentleman aged 60, who had previously enjoyed good health, was suddenly seized with most violent pain of the abdomen, accompanied with vomiting. He became pale, cold, and, from rapid sinking of the vital powers, died in about six hours. On dissection, a perforation was found to have taken place at a diseased portion of the colon, with extravasation of its contents into the abdomen.*

CASE 63.—Fowler, a boy 8 years of age, received an injury upon his belly from a cart-wheel having passed over it. He became cold, and sunk into a state of collapse, accompanied with great pain, and sense of burning heat of belly. He became worse, and died a few hours after the receipt of the in-

* Abercrombie on the Stomach, &c.

jury. On dissection I found the intestinal canal torn across in six or seven places.

In other cases of this kind, the pain produced by the irritating foreign matter which has escaped into the peritoneal cavity, acting as a stimulant, assists in producing reaction, by which life is longer protracted, so as to admit of the accession of inflammation, with its consequent effusion of lymph upon the peritoneum.

CASE 64.—John M'Court was tried at Edinburgh, 28th November 1831, and convicted of the murder of his wife, by having inflicted severe blows upon her head, face, abdomen, and limbs. She was carried to the Royal Infirmary in a collapsed state, and died within twelve hours after having received the injuries. On dissection, a portion of the small intestine about three feet from the stomach, was nearly torn across; some recent lymph was effused on the peritonæum at the part, of which the situation corresponded with an external mark of contusion.

CASE 65.—J. A. aged about 45, when in a state of intoxication, fell over a wall about five feet in height, and seemed to have struck his belly on a pile of wood which stood in the ground; he was affected with severe pain and vomiting, with prostration of strength, and died twenty-five hours after the fall. On dissection, I found a ruptured perforation in the ileum, with some inflammatory effusion on the peritonæum.

Other cases of a similar nature will afterwards be detailed in a subsequent chapter.

The division of the pneumo-gastric, the intercostal or phrenic nerves, occasions death by bringing the action of the heart and respiration to a stand.

Severe contusions and lacerations of the extremities, particularly where the larger joints have been crushed, are occasionally followed by similar fatal effects by the shock given to the nervous system.

Homicide is often occasioned in this way by intention, but more commonly by accident or culpable recklessness.

CASE 66.—Mary Wilkie or Finlay was tried at Perth, 1836. The prisoner was alleged to have murdered her husband, by having broken his leg by severe blows with a poker. Of this there was strong evidence. But some doubts having been entertained as to the cause of the fractures of the leg, and the illness of the deceased having been aggravated by *delirium tremens*, the charge of murder was departed from, and she was convicted of assault.

CASE 67.—J. Craw was tried at Edinburgh, 4th June 1827, for the murder of J. Guthrie, by having loaded a spring-gun ; which being set on the 1st of March, and Guthrie having come in contact with the string or wire attached to it, exploded and wounded him so severely in the knee, that he died on the 28th of the same month.

It is not uncommon to see elderly and infirm individuals who had been driven down by horses or carriages on the streets or highroads, and suffered fractures of the neck of the thigh-bone, and other severe bruises, by which they soon die. Trials for culpable homicide often take place in cases of this description.

When cases of injuries of the extremities do not prove immediately fatal, they may ultimately cause death from inflammation, sloughing, or profuse discharge. Lesser degrees of injury, not usually fatal, may also become so, from the supervention of other aggravating circumstances, such as erysipelas, delirium tremens, fever, tetanus, &c. Such cases lie much open to the allegation of exculpatory pleas, from the modifying circumstances which are subsequently to be treated of.

The shock given to the system by severe and extensive *Burns*, affords another example of death produced by a depressing effect upon the nervous system ; the injury thus applied to the extremities of the nerves, exerting a similar influence upon the brain and heart, as if it had been applied more directly to these parts, causing prostration without reaction. The patient in such

cases becomes cold, his pulse feeble or entirely wanting, and he feels an oppression about his chest; he is generally insensible to pain, appears stupified, the breathing becomes feeble, then laborious and stertorous, the countenance livid, and coma and death supervene. After death, no morbid appearances in the internal cavities of importance have been remarked, except congestion of blood in the veins of the internal organs.

“The proximate cause of death,” says Mr Travers, in speaking of fatal burns, “appears to me to be a species of concussion, functional not organic, by which the influence of the brain over the organ of circulation is deranged or suspended; for the symptoms of cerebral disorder are first manifested; secondly, a diminution of the power of the heart; thirdly, the respiratory power becomes impeded, as a necessary consequence of the two first.”*

In other cases, where death does not occur immediately, reaction takes place, but either imperfectly, or is followed by so much sloughing and suppuration, that the patient sooner or later dies exhausted.

This subject is interesting to the medical jurist, both because homicide has been occasioned by burning by fire, the application of sulphuric acid, and other escharotics, and because a very important question sometimes arises, as to whether a dead person found burnt, had died from the burning, or his body had been burned after death.

CASE 68.—George Duffy was tried at Glasgow, 18th October 1832, for having assaulted his wife, and forced her upon the fire, whereby she was so severely burnt on the back, belly, and other parts of her body, that she died in the Royal Infirmary twenty-six days after. Of this crime, which had arisen from drunkenness and barbarous cruelty, Duffy was convicted, and was executed for it.

CASE 69.—Hugh and Euphemia Macmillan were tried at Edinburgh, 17th December 1827, for murder, by having thrown a quantity of sulphuric acid into the face of the deceased. This had produced very violent and destructive inflammation of his

* Travers, vol. i. p. 79.

eyes, so that bleeding at the arm was deemed necessary ; the wound of his arm thus caused inflamed, and he died. In consequence of this second injury by the hand of another, the court restricted the charge to that of assault.

CASE 70.—A few years ago I saw in the Blind Asylum of Glasgow, another man whose eyes had been destroyed by sulphuric acid having been maliciously thrown at him. This case tends to shew that the injury with the acid would not of itself have been fatal in the preceding case.

Homicide has also been several times committed by the extensive application of strong escharotic substances to the skin by arrogant quacks, with a view to prevent or cure disease, but which has brought on sloughing and mortification, of which the patients died. The celebrated St John Long was several times tried at the Old Bailey, a few years ago, and convicted of culpable homicide committed in this way.

In some cases where dead bodies have been found in a burnt state, it has been necessary to inquire whether death had been caused by the burning, or the body had been burned after death from some other cause.

An instance of this kind is related by Foderé, in which an individual murdered several others with an axe, and then set fire to the house. At first the dead bodies were not particularly examined ; but certain suspicions having arisen, they were disinterred, when the burning was found to have been very superficial, and the marks of the axe were distinctly visible.

The only way, except by moral evidence, in which the fact of the individual having been burnt when alive, can be ascertained, is by the presence of signs of vital reaction upon the body, consisting of redness and vesications of some parts, along with charring of others ; but, in cases of ordinary burning, with a more superficial and incomplete combustion of the parts affected than in cases of what has, improperly, been termed, the spontaneous combustion of the body. (See Edin. Med. and Surg. Jour. v. 35.)

In cases of burning before death, it has been said that around

the eschars a red line will be visible, which is permanent. When reaction takes place after severe burns, such a red line, from increased vascularity, is certainly visible. But I have seen cases where the individuals lived for a day or two in a state of collapse, without reaction taking place, except very feebly and partially, and in which no red line around the burnt parts became apparent. The presence of this criterion, therefore, is not always to be expected, even when an individual has been burnt to death. But when such a red line does exist, it may certainly be inferred that the burning had taken place when the person was alive.

The component parts of the body, under ordinary circumstances, are so little combustible, that they are only burnt by the burning of the clothes or other inflammable substances applied to them. So that the burnt parts may be said to be only roasted or charred by the heat applied to them, for the parts themselves do not burn. But there are numerous cases on record of an extraordinary degree of combustibility of the body, chiefly, if not entirely, in the persons of old drunkards. In these cases, parts of the body having been set on fire, they consume to ashes by a combustibility inherent in themselves. This has been called the spontaneous combustion of the body; but as it has not been observed without the application of fire to the body, it cannot be said to be spontaneous. It is therefore only a preternatural combustibility of the body. In several of the cases recorded, the whole of the soft parts, and in some the greater part of the bones, participated in the incineration.*

“Some deductions are drawn from these cases by Drs Lair and Marc, which it is proper to mention. 1. The subjects were nearly all females—and they were far advanced in life. 2. Most of the individuals had for a long time made an immoderate use of spiritous liquors, and they were either very fat or very lean. 3. The combustion occurred accidentally, and often from a slight cause, such as a candle, a coal, or even a spark. 4. The combustion proceeded with great rapidity, but the extremities, such as the feet and the hands, were generally

* See Beck, who has made allusion to eighteen cases of this kind.

spared by the fire. 5. Water, instead of extinguishing the flames which proceeded from the parts on fire, sometimes gave them more activity. 6. The fire did very little damage, and often did not affect the combustible objects which were in contact with the human body at the moment when it was burning. 7. The combustion of these bodies left, as a residuum, fat fœtid ashes, with an unctuous, stinking, and very penetrating soot. 8. The combustions have occurred at all seasons, and in northern as well as southern countries.

“As to the cause of these phenomena, two opinions have been promulgated. Lair and others suppose that there is an alcoholic impregnation of the body, and that actual contact with fire is then necessary to produce them; while Maffei, Le Cat, Kopp, and Marc, attribute this combustion to the agency of the electric fluid.”*

Sudden death, referable to the concussion, shock, or depression, we have been considering as affecting the nervous system, is not unfrequently produced by what has been termed a stroke of the sun, by lightning, and by exposure to excessive cold.

The effects of excessive heat upon the body, by the influence of the sun, have often proved very remarkable, and very fatal. This has been termed *a stroke of the sun*.

The depressing effect upon the action of the heart by a stroke of the sun, is similar to that produced by extensive burns. In such cases weakness of pulse, coldness, and other indications of collapse, have been observed.† In other cases, and under more favourable circumstances, as relates to the vigour of the patient and a shock of less intensity, an apoplectic state is produced, consisting of insensibility, with a full pulse and signs of turgidity of the bloodvessels about the head, accompanied with other symptoms of compression of the brain. When seen at an early stage, patients have recovered from this state under the use of copious evacuations and cold applications to the head‡. Dissection in such cases has only shewn great increased fulness of the vessels within the head.

* Beck, p. 315.

† Travers, Alison.

‡ Mitchell, Edinburgh Medical and Surgical Journal.

By the shock from lightning, individuals are sometimes instantly struck dead without any traces of its effects being apparent on the body. In some instances, however, there are marks like red stripes upon it ; while in others, the viscera and other parts of the body have been found ruptured, the body peculiarly flaccid, and emitting a sulphurous or phosphoric odour.

When the individual struck by lightning is not killed on the spot, he is stunned, and the nervous system is affected from congestive apoplexy of the brain. From this he may die in seventeen or twenty-four hours, or if properly treated and the shock less severe, he may recover.*

In cases of this kind, I am induced to consider the effects of the lightning owing to the short but intense impression, causing extreme excitement of the nervous system, suspending its functions, and thus bringing on a corresponding depression from which the individual does not recover. I have been led to draw this inference from the effects produced by a less violent stroke being those of excitement, and, in cases where the eyes are affected, of temporary suspension of the sensibility of the retina.

Different statements have been made as to the state of the blood in those who have been killed by lightning ; some having represented that it does, others that it does not coagulate. In some cases it has been found issuing from the external openings of the body.

When, along with the appearances above described, an individual is found dead after a thunder-storm, and particularly if metallic substances about him are found melted, or his clothes burnt, death may be attributed to the effects of lightning, if no other cause for death can be ascertained.

Another mode in which sudden death occurs, is by the continued effect of excessive cold upon the body. The hurtful operation of cold in such cases takes place upon the nervous system, by which the force of the circulation of the blood is weakened. The effects of cold are found to be increased by intoxication.

The first effects of excessive cold are, languor and failure of

* See cases by Macaulay, Ed. Med. Chir. Trans. vol. i. also Phil. Trans.

the strength, stupor, and delirium, followed by coma and death. In some cases hæmorrhage has been observed from the nostrils or ears; and in others, serous effusion has been found within the head.

The excessive cold acts as a sedative on the capillary circulation upon the surface of the body; which is probably followed, in the first instance, by an increased flow of blood to the brain and other internal organs. In the cases of death, by exposure to excessive cold, which were examined by Dr Kelly, extreme congestion of the bloodvessels of the brain and abdominal viscera was observed, and serous effusion was found in the ventricles of the brain.*

SECTION V.—*Concluding Remarks on Homicide by Injuries from External Violence to the Nervous System.*

We have seen the danger which arises from injuries done to the nervous system, whether they immediately affect the brain, spinal chord, or their nervous ramifications. We have also seen that these may prove fatal by shock or concussion,—by laceration,—by compression from sanguineous effusion, or other causes, within the cranium, or spinal canal,—by inflammation and its consequences, or by the continuance of impaired function. “Some injuries,” says Mr Travers, “interfere with the intellectual powers, some with sensation and voluntary motion, some with the nutritive, others with the excretory function, which is an appendage to the nutritive. Certain modes and combinations of these have the effect of arresting the involuntary actions as determinately, if not as rapidly, as those injuries which bear directly upon the vital functions of circulation or respiration. The progress of such cases to their termination varies according to the function primarily impaired, the mode and degree of its impairment, and the vivacity of the sympathy existing between it and the functions of life; but while duration alone aggravates the burthen, sleep, appetite, digestion, exercise, and all the modes of recruit necessary to the vigour of the nervous system are withdrawn, and the continuance of this state of irritation operates as an indirect but sure sedative upon the heart itself.”†

* See Medico-Chir. Trans. of Edin. vol. i.

† Travers, vol. i. p. 175.

It has also been shewn that injuries which did not at first appear to be dangerous, and which seemed even slight, are sometimes followed by fatal results.

Hence in all cases of injuries of the head, the prognosis should be very guarded, and carefully deduced from a consideration of all the minute particulars of the case. Great caution and discretion are peculiarly necessary, and of vast importance in a medico-legal point of view: for, by the medical opinion given, the conduct of the public authorities is regulated, and upon it the fate of the prisoner depends. In some fatal cases, where no danger was at first apprehended, the prisoner has been tried for assault merely, and afterwards committed on a charge of murder. In other cases, the guilty person might escape altogether, from the authorities not being apprised of danger; while, on the contrary, the accused person might be doomed to the hardship of seizure and imprisonment without sufficient reason, be detained on groundless apprehensions, or prosecuted from an erroneous opinion given upon the case.

In forming a prognosis in cases of the different kinds of injury, the medical jurist must be guided by the nature and extent of the injury, the age, and circumstances of the patient, as to state of constitution, habits, exposure to cold, fatigue, &c.

A few words may here be added as to the prognosis, in some of the chief injuries of the nervous system.

1. Concussion or commotion of the brain is more dangerous in old than in young persons. It is highly dangerous when followed by symptoms either of compression or inflammation of the brain. There is most danger to be apprehended when the resistance has been greatest, and the skull not fractured. The danger is also greater when the violence has been applied from above downwards, than either when from before, backward, or from one side to the other.*

2. Effusion of blood within the cranium, in general proves fatal. A few solitary exceptions to this, by the evacuation of the blood from the surface of the brain, have been recorded. These have occurred merely from extreme good fortune, and

* Orfila.

their recovery could not have been anticipated. Orfila mentions his having seen two cases, along with Beclard, of great effusion of blood on the brain; one was trepanned, the blood evacuated and the patient recovered, the other died. Similar cases are mentioned by Abernethy.

3. Fractures of the skull are dangerous from their nature, extent, and situation. Simple fractures or fissures may not be followed by any bad consequences. Compound fractures are always dangerous, as some portions of bone are generally depressed or driven in upon the brain so as to excite inflammation. Extensive fractures, even though simple, as through the base of the brain, are generally fatal.

4. When inflammation of the brain has taken place from an injury, the patient very rarely recovers. Where symptoms of purulent effusion have taken place, the case is generally quite hopeless.

When the inflammation of the brain has taken place from an injury of the scalp, the case is less unfavourable than when it has arisen from direct injury of the brain or its membranes. When it follows concussion of the brain, it is more unfavourable than from other injuries. When the amendment takes place slowly, it is a more favourable indication than when it occurs suddenly. When the inflammation has arisen from a foreign body penetrating the brain, the case will be more or less unfavourable, according to the possibility of extracting the foreign body.

In cases of this kind, it should be recollected that patients may appear to recover for a little, and then unexpectedly become worse and suddenly die.

5. The complete compression or division of the spinal chord always proves fatal. From more partial and slight injuries, recovery may, in some degree or altogether, take place.

CHAPTER VI.

OF HOMICIDE BY INJURIES OF THE CIRCULATING SYSTEM.

Preliminary Remarks.

INJURIES of the circulating system, or those parts by which the blood is circulated, including the heart, arteries, and veins, are frequent causes of sudden death, and are often the subjects of medico-legal investigation.

The most common way in which injuries of the circulating organs occasion death is, by the excessive evacuation of their contained blood, or hæmorrhage ; a circumstance which cannot take place, without causing extreme exhaustion and depression of the vital energy of the whole body.

But there are several other different ways in which injuries of the circulating organs also prove fatal :—*1st*, Sudden death may take place by the effusion of a much smaller quantity of blood from its containing vessels, than would produce death by exhaustion ; in consequence of the effused blood being confined, and so situated as mechanically to compress and impede the functions of some of those organs which are immediately necessary to life ; such as an effusion of blood within the cranium compressing the brain, within the spinal canal, pericardium, or air passages ;—cases which are treated of under the injuries of these parts. *2d*, By an injury of some part of the vascular system being followed by an aneurism, which in its progress may prove fatal. *3d*, By inflammation of some part of the circulating system, after an injury ; *4th*, By the admission of air into the veins ; and, *5th*, By gangrene of a limb.

SECTION I.

Of Death by Hæmorrhage.

Fatal hæmorrhage may take place from wounds of any part of the body, where the blood is freely poured out, either from

the heart or from the vessels connected with it. Death, of course, takes place more quickly from wounds of large vessels than small ones. But to this there may be exceptions; for the hæmorrhage, even from a wound of a large vessel, may, by a very slight cause, be retarded or altogether stopt for a time, even for some days, and then break out again, so as to prove fatal. To produce death by hæmorrhage, it is not necessary that the blood should escape from the body altogether. If it escapes from its containing vessels, it may be effused either into some of the internal cavities of the head, chest, or abdomen, or into the cellular tissue, in the form of ecchymosis, and with the same fatal consequences.

When death is occasioned by hæmorrhage, the quantity of blood lost must be large. The precise quantity requisite for this cannot be defined, for it will vary according to circumstances, such as the age, size, habit, strength, and other circumstances of the individual, and the suddenness of the flow.

In order to produce death by hæmorrhage, it is not necessary that a large bloodvessel be wounded; for the wound of any very vascular part is equally fatal. This will be seen by the cases afterwards to be detailed.

According to the most probable estimate, the blood forms about one-fifth part of the weight of the whole body. Of this, one-fourth is arterial blood; the remaining three-fourths venous.

The loss of from five to eight pounds of blood is required to prove fatal in cases of adults. But as some individuals cannot bear the loss of blood so well as others, the evacuation of a much smaller quantity would in such cases prove fatal.

By experiments on dogs, it has been found that they could not bear the loss of more blood than about one-twentieth of the weight of the whole body.

As has already been stated in the preliminary remarks, the evacuation of a much smaller quantity of blood from the vessels proves fatal in those cases where the blood acts mechanically, like a foreign body, by interrupting the functions of important organs. This has already been illustrated in the case of hæmorrhage into the cranium or spinal canal, and will

afterwards be shewn to take place in several other parts, the functions of which are indispensable to life.

In cases too, where the vital powers have been depressed by contusions and other injuries, the loss of a smaller quantity of blood will prove fatal, than in others.

When severe contusions have been inflicted on different parts of the body, they sometimes cause death by hæmorrhage, from the very extensive ecchymosis which takes place. In some of these cases, several pounds of blood are extravasated under the integuments, which has the same exhausting effects as if it had flowed out from the body.

In medico-legal cases, it is often difficult to determine whether or not death has taken place from hæmorrhage; for the blood which may have escaped from the wound may have been washed away to conceal the crime; it may have been absorbed by the clothes of the wounded person, and removed; or in other cases, the blood may have flowed out by a wound made after death, different from that which may have occasioned the homicide.

To decide this question, attention is necessary to the following circumstances, along with a careful examination of the dead body.

In order to establish that the individual died of hæmorrhage, it is necessary, 1st, That the wound be such, that it could not have been made after death. If the wound had been made during life, blood must have flowed from every part of it, traces of which will be seen in the ecchymosis and small clots which adhere to it. But if the wound had been made after death, the blood will only have flowed from some great vessel. 2d, In punctured or incised wounds made during life, there is often a degree of ecchymosis or infiltration of blood into the surrounding cellular tissue, which does not take place in wounds made after death. 3d, The blood from wounds during life, is, in general, chiefly arterial, while that from wounds after death is venous. 4th, The blood from wounds during life coagulates on the floor as it pours upon it. The exceptions to this are of rare occurrence, and arise from peculiar states of the body, as death from some poisons or from suffocation; whereas hæmor-

rhage after death is generally venous, and either falls out in clots or in a grumous state, and does not coagulate farther. 5th, Upon dissection the internal parts and organs of the body (except the brain, the vessels of which are always necessarily full) appear blanched and bloodless in those who have died from hæmorrhage. 6th, It must be obvious, that such vessels had been wounded as would have afforded a fatal hæmorrhage. On the other hand, it is to be kept in mind that some of the larger vessels not having been wounded, is no proof that the individual did not die from hæmorrhage; for wounds of highly vascular parts, even though these be of small size, as of the vagina, are equally fatal.

When to the presence of these signs of death by hæmorrhage, it is ascertained that the person was previously in good health, and that no other cause can be assigned for his death, the hæmorrhage may be considered as the cause with absolute certainty.

In considering this subject, however, it is to be recollected that blanching, or want of blood in the dead body, sometimes exists without hæmorrhage before death. This has been particularly remarked in cases of dropsy and diseased kidney. I have also frequently observed it in habitual drunkards of the lower orders, who had taken plenty of strong drink, but very little food, for a length of time. But if, along with the blanched state of the body, there exists a mark of the individual having been recently bled at the arm, it may be perplexing to say, whether or not death had been occasioned by hæmorrhage from the arm or from other causes. The blanched appearance of the body and a mark of recent blood-letting existed in the case of Mrs Macormick, already detailed (p. 39), but we could not ascertain that more than a few ounces of blood had been lost. When no obvious reason, then, can be assigned for the blanched state of the body of a person who had been previously in good health, and no other cause of death can be discovered, that by hæmorrhage may be correctly inferred.

The plea of accident is, in many cases of death by hæmorrhage, urged in exculpation. But the nature of the wound may be incompatible with this, and there may be other marks

of violence which may render injury by accident out of the question. To this may be added the evidence afforded from the relation and habits of the parties, as rendering intentional injury or murderous intent either probable or presumptive.

In the investigation of medico-legal cases of death by hæmorrhage, it is sometimes of consequence to determine whether red-coloured matter found on the floor and other parts, or staining the clothes, be really blood. If this is blood, it will be readily dissolved and extracted by cold water ; and the application of two simple tests to this reddened water will decide this question. 1. When ammonia is added to a solution of blood in water, the red colour remains unchanged ; whereas ammonia changes the colour of all other red dyes. 2. By boiling a watery solution of blood in a test tube, the red colour is changed to a dirty greenish colour, and coagulated albuminous flakes appear mixed with the fluid.

Having premised these general remarks on death by hæmorrhage, I shall now proceed to treat of homicide by wounds of different parts of the circulating system individually, as proving fatal by hæmorrhage, by aneurism, by inflammation, by the admission of air into the vessels, and by gangrene.

SECTION II.

Of Homicide by Hæmorrhage from injuries of particular parts of the Circulating System.

A. Of the Head and Neck.

Cases of fatal hæmorrhage within the cavity of the cranium have been already treated of in the preceding chapter, on Injuries of the Nervous System ; because they prove fatal, not from the excessive quantity of blood evacuated from the vessels, but from its mechanical effect in causing compression of the brain.

Cases of death by hæmorrhage from wounds of the neck are often the subjects of medico-legal inquiry. They are, however,

more commonly cases of suicide than of homicide, incisions of the neck being a frequent mode of effecting the former in this country. But cases of murder have sometimes occurred by the infliction of wounds of the same kind, and in the same situation.

CASE 71.—The body of a woman who had been found lying dead in her house with her throat cut, was examined by Dr Corkindale at Glasgow, in April 1824. There was a deep wound in the fore part of the neck formed by two different incisions; the one horizontal, three inches long, the other two inches long, running obliquely downwards from one extremity of the former. The root of the tongue was separated completely from its attachments—the pharynx laid open—one of the cartilages of the larynx cut through—the internal jugular vein on the right side was wounded—but the carotid arteries on both sides were entire. A considerable quantity of blood had been lost, which was situated partly on the bed where the feet of the body lay, partly on the floor at a distance of seven feet from the bed, and also on a sheet which was taken from under the bed soaked with it.

CASE 72.—On the 6th of April 1831, I inspected the body of Sutherland, the keeper of a public house in the High Street. His body had been found in a field about two miles from his home. His throat had been cut, and his hands were covered with blood, and there was a bloody pen-knife lying near him.

The wound upon the throat was situated chiefly on the right side, immediately below the chin, and separated the os hyoides from the thyroid cartilage. The superior thyroid arteries were divided, but the carotid arteries, jugular veins, and large nerves, were all entire. The wound had been formed by several uneven incisions across the throat. On the right side it terminated by distinct marks of six incisions, on the left by four. The watch, money, &c. of the deceased were all found in his pockets.

CASE 73.—A case is related by Sir C. Bell, in his *Surgical Observations*, in which a young man committed suicide by incisions at the fore part of the neck. Though no very large arterial trunks were divided, he died of hæmorrhage in three

hours. The wounded parts of this case are in the Museum of the College of Surgeons.

These cases shew that death may take place by hæmorrhage from the neck, without the larger arteries or veins being divided.

CASE 74.—Margaret Thomson or M'Ansh was tried at Stirling, for the murder of her daughter, by cutting her throat. The surgeons who inspected the body found, on the left side of the neck, a large incised wound which divided the trachea and left carotid artery. Hæmorrhage from this wound had caused death. But in this case the plea of suicide was maintained; and as the guilt of the mother appeared to be only highly probable from circumstantial evidence, she was discharged on a verdict of "not proven."

CASE 75.—Charles Campbell was tried at Glasgow, 27th April 1826, for the murder of his wife, by having wounded her at the lower part of the neck with a knife, of which she very soon died. The wound was two inches deep, and situated somewhat to the left side. It was found on dissection, that the left subclavian artery was divided to the extent of two-thirds of its circumference. Considerable hæmorrhage had taken place, the parts about the neck were much gorged with blood, and about a pound of blood was found in the cavity of the chest.

B. Of the Chest.

Wounds of the chest prove fatal in several different ways, but very frequently by hæmorrhage, from the facility with which the heart and large vessels connected with it can be wounded through the parietes of the thorax. In many cases of this kind, death does not take place from the depressing effect of the quantity of blood evacuated, but from its mechanical effect, by embarrassing or interrupting the action of the heart or lungs. In this way the effusion of only a few ounces of blood into the pericardium proves instantly fatal, by its pressure upon the heart, which it surrounds. We have frequent opportunities of seeing illustrations of this, in the burst-

ing of aneurisms of the arch of the aorta into the pericardium ; as well as in the more rare cases of spontaneous bursting of the heart, and in some cases of wounds.

CASE 76.—An elderly man-servant of a family in Charlotte Square, was standing at a table in the kitchen cutting some bread for tea, when, without any previous warning, he suddenly fell backwards upon the floor, and died instantly, without stirring from the spot. On dissection, I found an aneurism of the aorta, which had burst into the pericardium, and distended it with blood.

CASE 77.—A prostitute, who was well known at the police-office, inveigled a gentleman into a low public-house in Leith Street. They went into a room, and got a bottle of ginger beer. The gentleman poured out a glass of it for the female. She laid hold of it, and in the act of putting it to her head to drink, she instantly fell down dead from her chair. On dissection, I found the pericardium distended with blood surrounding the heart. This proceeded from the bursting of a small aneurism just at the commencement of the aorta. The aneurismal tumour was only about half an inch in diameter, and the opening would only have admitted a common goose quill. The subject of this case was about 30 years of age, and seemed in good health, but she had lived intemperately. The quantity of blood in the pericardium, in each of these cases, did not exceed 8 or 10 ounces.

CASES 78, 79.—Two cases of spontaneous rupture of the heart are related by Dr Abercrombie, which had caused immediate death from effusion of blood into the pericardium. One of these patients was 35 years of age, the other 28. There did not appear to be any previous disease about the heart.* I recollect having seen another case of the same kind, in which there was considerable difficulty in finding the opening from which the blood had made its exit. The case of a child of 4 years of age is mentioned by Mr Brown of Dominica, where death suddenly took place from hæmorrhage into the pericar-

* Trans. of the Edin. Med. Chir. Society, vol. i.

dium, in consequence of a spontaneous bursting of the pulmonary artery.*

It will be observed that death takes place more suddenly in cases of spontaneous hæmorrhage into the pericardium from disease, than from wounds. This arises from the morbid parts not contracting, so as to stop or retard the hæmorrhage, as they do in the healthy state when they are wounded.

A rupture of the heart, or large vessel within the chest, may take place either from pressure or a blow upon it, without any appearance of external injury.

CASES 80, 81.—There is a preparation of the lacerated heart of a child in the Museum of the Royal College of Surgeons, which was presented by Dr J. Gairdner. A cart-wheel had passed over the chest of the child, and occasioned instant death, but there was no external wound or fracture of the ribs. See *Trans. of Edin. Med. Chir. Society*, vol. i. p. 662. A similar case will be found in the *Cyclopedia of Prac. Med.* vol. iv. p. 557. In his lectures, Dr Christison mentioned two cases of rupture of the heart from violence. In one it had been caused by a fall, in the other from a blow.

When the heart, or any of its large vessels, has been wounded, death may immediately ensue. But when the wound is not large, a slight cause may prevent the hæmorrhage from proving instantly fatal, such as the muscular contraction of the wounded part, or the presence of a foreign body occupying the orifice. This may retard the flow of blood, and make its exit gradual, or may stay it for a time, so that death may be prevented for some hours, or even days.

“Wounds in the left side of the breast,” says Mr J. Bell, “are more dangerous than wounds in the right, on account of the heart’s being there; and a wound through the left side of the breast, followed by faintings, difficult breathing, coldness of the extremities, suppression of the pulse, with great anxieties

* *Trans. of the Edin. Med. Chir. Society*, vol. i.

and deadly fear, are very certain signs that the man is wounded in the heart, and is about to die; and there is sufficient time for these signs to appear, for it is not always at the moment that the patient dies. One man being wounded with a sword, the point of it cut the coronary artery, which threw out its blood so slowly, that it was two hours before the pericardium filled with blood, and then, after great anxiety, the patient died. In another soldier, the apex of the heart was cut with the point of a very long and slender sword, and this soldier lived twelve hours, during which time, as appeared after his death, the heart had, at every stroke, been losing a small quantity of blood, till it had, in twelve hours, entirely filled the chest, and then the patient was suffocated and died.”*

In further illustration, I may quote the remarks of Sir G. Ballingall upon this subject, contained in his *Outlines of Military Surgery*. “We have now, however,” says Sir George, “many proofs upon record, that bayonet and other punctured wounds of the heart, are not, of necessity, immediately fatal; we have also examples of patients surviving for a considerable time musket wounds of the heart, of which an interesting case is recorded in the 14th vol. of the *Edin. Med. and Surg. Journal*, where a plate is given exhibiting the appearances of such a wound, in the case of a soldier of the Queen’s Regiment, who was wounded at Corunna, and who died after his arrival in England, fourteen days subsequent to the receipt of the injury. In the article *Cas rares*, in the “*Dictionnaire des Sciences Médicales*,” we have an instance related by Fournier, and authenticated by M. Mausion, Chief Surgeon to the Hospital at Orleans, of a patient who not only survived a wound of the heart, but may be said to have made a perfect recovery from it, inasmuch as he died at the distance of six years after the receipt of the injury, from disease unconnected with it, and the ball was found imbedded in the heart.”

“Wounds of the *aorta and pulmonary artery*,” continues Sir George, “are more immediately and more necessarily fatal than wounds of the heart itself. The dense structure of the coats of these vessels and their comparative thinness, *render it*

* *Principles of Surgery*, vol. i. p. 468.

*impossible to restrain in any degree the hæmorrhage necessarily following their wounds, while the muscular structure of the heart, and the thick substance of its ventricles, enables it in some cases to afford an obstacle to the escape of the blood. Musket wounds of these vessels I believe to be inevitably fatal, but patients are known to have lived for some time after punctured wounds, even of the aorta.”**

A case is mentioned by Orfila, in which the heart was wounded by a small sharp instrument. The patient was admitted into the Hospital Bicêtre. The external wound was nearly cicatrised, but his breathing became anxious and oppressed, his pulse small and intermitting, and he died on the 20th day after receiving the wound. On dissection, the left lung was found adhering to the pericardium, which exhibited signs of high inflammation, and contained 10 or 12 ounces of bloody serous fluid. There was a small piece of iron implanted in the substance of the left ventricle, into which it had penetrated, but by its presence had prevented excessive hæmorrhage.

There is a case mentioned in the 2d vol. of the Med. Chir. Trans. (p. 58), in which the patient lived forty-nine hours after a bayonet wound of the heart.

CASE 82.—John Mackintosh was tried at Inverness, 23d September 1836, for the murder of Simon Mackay or Bain. Mackintosh, Bain, and others, had been drinking and quarrelling on the 5th August. The former having quarrelled with some of the others, upon whom he was going to take revenge, and Bain coming in his way (being dark, about twelve at night), was stabbed in the breast with a knife. Bain had gone about eighteen yards from the place where he received the wound; he then fell, and was unable to rise. He was carried home, and died in six hours after being wounded. On dissection, there was a punctured wound of an elliptical shape, close to the sternum, between the cartilages of the fourth and fifth ribs of the left side. The wound penetrated into the right ventricle of the heart, the pericardium was nearly filled with blood, and there was also about four pounds of blood in the left

* Outlines of Military Surgery, p. 326-7.

side of the thorax. The wound was obliquely transverse, and divided the coronary artery.

CASE 83.—A man named Campbell was stabbed by Patrick O'Neil in five places with a knife. Three of these were into the belly, and two into the chest. A part of the abdominal viscera protruded, and the intestines having been wounded, some of their contents escaped into the cavity of the abdomen. Campbell writhed about in great pain and torture, and died in four hours after receiving the injuries. On dissection, it was found that one of the wounds on the right side of the chest and lower part of the sternum, divided the ensiform cartilage, proceeded upwards and towards the left side, and wounded the right ventricle of the heart. The pericardium was distended with blood, which had evidently been the immediate cause of death, while the pain and suffering was probably owing to the wounds of the abdomen. In this case, the wound of the heart not having proved instantly fatal, must have been owing to contraction of the parietes of the ventricle, as above stated. The preparation of the heart is in my possession, and I am indebted to Dr Corkindale of Glasgow for the particulars of the case.

Wounds of the auricles or large vessels connected with the heart are more rapidly fatal, from the thinness of their coats not preventing rapid hæmorrhage.

CASE 84.—David Waters, a stout healthy boy, seven years old, was stabbed by his father (when in a state of temporary derangement) on the 13th September 1831, and died almost instantly. The body of this boy was inspected by Mr William Brown and myself on the following day. We found that a number of small wounds had been inflicted at the lower part of the sternum; some of which had penetrated into the chest, others into the abdomen. Some frothy mucus issued from the mouth, and the tongue projected from between the teeth. Upon removing the sternum, we found a great effusion of blood, both into the pericardium and into the cavity of the abdomen, in consequence of these cavities having communicated with each other by the wounds which had penetrated through the dia-

phragm. The right side of the heart was penetrated by eight or ten small wounds, two of which were into the right auricle, the rest into the ventricle.* The heart was quite empty; the blood was fluid. It appeared from the evidence at the trial of Waters, that he inflicted the wounds on his son by means of a small table fork, and that he died almost instantly.

CASE 85.—Mr John Symons, surgeon, was tried at Edinburgh, 30th August 1810, for the murder of John Boyd, by having stabbed him through the chest. The former was surgeon to the Edinburgh Militia; and, in returning home from a party after supper, he was attacked and knocked down by Boyd, who had just returned from the races with some companions. Both were in a state of excitement from strong drink, so that Symons drew his sabre and wounded Boyd in the chest. On dissection, the sabre was found to have penetrated into the thorax between the axilla and scapula, passed through the left side of the lungs, the left ventricle and right auricle of the heart. Symons was found not guilty.

Wounds of the larger trunks of the pulmonary vessels, give rise to copious and fatal hæmorrhage into the cavity of the chest. In the following case the hæmorrhage took place into the pericardium.

CASE. 86.—In the case of Helen Ross or Kelly, whose body was inspected by Dr Corkindale at Glasgow 1835, there was a penetrating wound on the left side of the chest between the second and third ribs, and near their junction with the sternum. The wounding body had penetrated through the upper part of the left lung, which was gorged with extravasated blood. The back part of the pericardium had been wounded, and ten or twelve ounces of blood had got into it. The heart was uninjured.

CASE 87.—A farm-servant, somewhat intoxicated, was returning home in the evening, along the Glasgow road, with his carts; was seen sitting on the front of one of them, and drove his horses at a furious rate. Shortly after this, the carter was found by the

* The preparation is in my possession.

side of the road unable to speak. He was carried into a neighbouring cottage, gave one or two groans, and expired. On dissection, Dr Craigie and I found that he had died from internal hæmorrhage, chiefly into the right cavity of the chest; about three pounds of blood having been effused from a laceration of the right lung near to the origin of its vessels. The liver was also lacerated, which had given rise to an escape of blood into the abdomen. This individual seemed to have fallen from his cart, and the wheel of it had passed obliquely across his right side. None of his ribs were broken, but there was an abrasion of the skin.

Fatal hæmorrhage into the cavity of the chest, may likewise take place from a wound of the axillary internal mammary, or intercostal arteries.

CASE 88.—Walter Redpath was tried at Edinburgh, 26th November 1810, for the murder of Andrew M'Kechmie by a gun-shot wound. The bullet or slug had penetrated the right side of the thorax betwixt the first and third ribs, the second having been shattered by the injury. The superior lobe of the lung was wounded, the axillary artery completely divided, and the cavity of the thorax filled with blood. This wound of course caused immediate death.

CASE 89.—Mrs Gow, whose husband was executed here in December 1831, was killed by having been stabbed with a knife in the chest. The knife penetrated the chest on the left side of the sternum, between the cartilages of the third and fourth ribs, and it divided completely across the internal mammary artery and vein of that side. The blood flowed from the wound very copiously at the moment of its infliction. She was taken to the Royal Infirmary, where she was under the care of Dr John Campbell. She seemed to do well for a few days; but it was evident that there was some fluid in the left side of the chest, preventing free respiration, and also hindering the patient from being able to turn upon the right side. As there had been *no* great degree of inflammatory action (probably in consequence of the loss of blood she had sustained), the fluid

that seemed to exist in the chest could not be inflammatory effusion ; it was therefore concluded that blood was accumulated there in considerable quantity. About the sixth or seventh day, the pleurisy increased, and the cough, which became more troublesome, caused a renewal of the hæmorrhage, by which she died at last rather suddenly on the ninth day after the injury. On dissection, *four* pounds of blood were found in the left cavity of the chest, and the rest of it filled with air, the lung of that side being quite collapsed.*

CASE 90.— — Scott was tried at Aberdeen, 17th December 1822, for the murder of Alexander Reid, by having stabbed him in the side. The wound entered the left side of the thorax between the lower ribs, and divided the intercostal artery. About six pounds of blood were contained in the thoracic cavity.

C. Of the Abdomen and Pelvis.

Sudden death, in cases of homicide, sometimes takes place from hæmorrhage into the cavity of the abdomen by external violence, causing the rupture of one or more bloodvessels of considerable size.

CASE 91.—George Campbell was tried at Glasgow, 9th September 1835, and convicted of the murder of Mrs Waters, by having knocked her down, and then kicked and trampled upon her, after having leaped upon her belly, by which she died most immediately. Drs Corkindale and Spittal, who inspected her body, found marks of severe contusions on several parts ; viz. above the left eye, on the nose, and back part of the head. They also found blood in both sides of the chest, and a large quantity in the belly,—several of the ribs fractured, and the liver torn in two places ; which injuries they concluded to be the cause of death.

CASE 92.—William Frazer was tried at Glasgow, 7th January 1837, for the murder of his wife. Mrs Frazer had been much given to drinking. A scuffle was heard one night between Frazer and his wife, during which exclamations of “ Murder ” and distress were heard from the deceased. Early in the

* The preparation of the wounded parts is in my possession.

morning she was found dead. On dissection, several marks of contusion were found on the temple, face, neck, arm, and knees; as also a wound at the corner of the left eye. Ecchymosis was found under each of these marks of injury, and likewise in the parietes at the lower part of the right side of the chest, where the 10th and 11th ribs were found fractured. The liver was extensively lacerated, and about three pounds of blood were contained in the cavity of the abdomen. As it did not appear by direct evidence that Frazer had inflicted injuries upon his wife, he was acquitted, on a verdict of "not proven."

CASE 93.—Mrs Hetherington, a woman of spare habit, of about 40 years of age, and who had borne seven children, had been severely beaten and kicked on the belly by her husband. After this she continued ill for about three weeks, when suddenly she was seized with symptoms of internal hæmorrhage, as denoted by sinking and prostration of strength, coldness, shivering, and faintness, which continued till the following morning, when she died. On a judicial inspection of the body, December 15. 1830, I found marks of contusion on the nose, under the left eye, and near the symphysis pubis, as indicated by blood extravasated into the cellular tissue. Upon laying open the abdominal cavity, about four pounds of grumous blood surrounded the uterus. When this was removed, it was found to have proceeded from the rupture of a small tumour upon the upper part of the uterus, near to the insertion of the Fallopian tube of the right side. As the inner surface of the uterus was lined with deciduary membrane, the tumour was evidently an extra-uterine conception.*

Dr Christison mentions his having seen a similar case, in which death from poisoning had been suspected. (See *Treatise on Poisons*, ed. 1832, p. 203.)

Four similar cases of sudden and fatal hæmorrhage into the cavity of the abdomen, from the rupture of extra-uterine conceptions, are described and delineated by Dr Granville, in his work on *Abortion*, &c. London 1834. These cases are col-

* A preparation of the uterus, &c. from this case, is in the Museum of the Royal College of Surgeons.

lected from different sources. There are other three cases of the same nature recorded by Mr Ingleby of Birmingham, in the 42d volume of the *Edin. Med. and Surg. Journal*. See also cases in the work of Madame Boivin and M. Duges.

Wounds of the external parts of the pelvis are sometimes fatal by hæmorrhage, and that without any very large vessel having been divided.

A few years ago several remarkable cases occurred, both in Edinburgh and Glasgow, of wounds of the external organs of generation in the female, from which the hæmorrhage proved suddenly fatal.

CASE 94.——— Pollock was tried at Edinburgh, 13th February 1826, for the murder of his wife, by having inflicted two wounds within the labia pudendi. The body of Mrs Pollock was inspected by Mr Newbigging and myself. We found no mark of violence on any part of the body externally, but we observed the clothes in contact with the private parts stained with blood. Upon separating the labia pudendi, we found a wound about an inch and a quarter long upon the inner side of the right nymphæ. This was evidently a recent clean incision, and was covered with coagulated blood. The point of the finger could be inserted into this wound in four several directions, where the cellular membrane had been divided in each of these directions to the depth of $2\frac{1}{4}$ inches. By injecting water into the aorta and veins, we found that none of the large vessels of the pelvis had been wounded. We found another very small wound, but consisting also of a very clean incision, close beside and parallel to that above described.

The cavities of the cranium, thorax, and abdomen, were examined, and their viscera found to be in their natural healthy state. We therefore ascribed the sudden death of this woman to the profuse hæmorrhage which must have taken place from the wound inflicted, in what we knew to be a very vascular tissue, at the orifice of the vagina. She had been addicted to drinking, and the wound had been inflicted when she was in a state of intoxication. Pollock was convicted, and received sen-

tence of death, but contrived to hang himself in jail before the day of his execution.

CASE 95.—Two young men, brothers, of the name of Duncan, were tried at Edinburgh, 29th March 1831, for the murder of Mrs Calderhead, who received a wound in the labium pudendi, on the 1st January preceding. Her body was inspected by Mr Mitchellhill (who had been called in to see her before death) and myself, at the police-office, to which place she had been previously carried. We found the lower parts of her gown, petticoats, and shift, all drenched with blood. This had evidently proceeded from a wound in the middle of the left labium pudendi. The wound was a clean incision, three quarters of an inch in length ; but when the finger was introduced into this wound, it entered into a bloody cavity, sufficient to have contained a small hen's egg, and from this cavity the finger could be passed to a greater depth in three different directions. The greatest depth of the wound was about three inches, and when it was laid open, the cut extremities of several pretty large bloodvessels were observed, particularly of that going to the clitoris.

This woman, it appeared, received the above wound at the first floor of a common stair, and had then been precipitated to the bottom of it. Blood was seen trickling down her legs, she was set up and taken to her house, but she became faint, and soon expired.

The Duncans escaped from the charge of murder, by a verdict of “ not proven,” but were transported for assault. Though the evidence was much against them, it did not appear distinctly which of them had inflicted the wound.

CASE 96.—Edward Moore was tried at Glasgow, April 1829, for the murder of his wife, Mary M'Avoy or Moore. On returning home from a visit to a brother, where they had got a good deal of whisky, Moore and his wife quarrelled ; he stabbed her in the private parts, she ran out of the house, he followed her, and carried her home on his back ; calling him a “ murdering wretch,” she groaned and expired. Upon dissection, Drs Corkindale and Neilson found three wounds, two of which were about an inch long, at the right labium and orifice

of the vagina. The greatest depth of these was an inch and a half. There were several marks of contusion upon the scalp, but none of the internal parts had been injured. The clothes were drenched with blood.

Moore was convicted and executed.

CASE 97.—William M'Feat was tried at Glasgow, September 1830, for the murder of his wife. In consequence of the drunken habits of his wife, M'Feat and she often quarrelled, and on the evening of her death, he maltreated her very much. Upon dissection, Drs Corkindale and Neilson found numerous marks of contusion on different parts of the body. The lower part of the belly and thighs were much stained with blood. Two wounds were found at the private parts, one being situated on each side of the right nympha. These were the clean cuts of a sharp instrument, about half an inch long, and the deepest an inch and a half in depth. These wounds were evidently recent, and had given issue to a great deal of blood, which was observed on the bed and other parts.

M'Feat was convicted and executed.

From these cases it is obvious, that sudden death may take place from hæmorrhage, without any of the larger or principal bloodvessels of the body being wounded; but, on the contrary, may happen from the continued flow which takes place from a wound of a highly vascular part.

I have known several cases which somewhat resemble those above mentioned, of fatal hæmorrhage taking place in consequence of incisions of a highly vascular part; I allude to operations for the removal of hæmorrhoidal tumours. (See Cooper's Lectures on Surgery.)

Cases have occasionally occurred of castration, either from accident or design, which have nearly proved fatal to the victims from excessive hæmorrhage, medical assistance not being at hand.

D. *Of the Extremities.*

Homicide by wounds of the extremities causing hæmorrhage has occasionally occurred, as in the following cases.

CASE 98.—M'Keil, a shoemaker, residing in a small house at the foot of Leith Wynd, was found dead upon the floor, by the side of the seat on which he sat at his work. His body was inspected by Mr Newbigging and myself on the following day. At the upper and outer part of the left thigh, we found a wound of about an inch in length. This wound proceeded from the lower part of the tensor vaginæ femoris muscle, directly to the femoral artery, which was very nearly completely divided across. The wound was about three inches deep. There had been a great loss of blood upon the floor, which was carefully washed away by M'Keil's wife before assistance was called; and about a pound of blood was also effused into the cellular tissue of the thigh. He had died almost instantly. The other parts of his body were blanched and exsanguined. The wife of M'Keil was strongly suspected of having given the wound, but I believe sufficient proof of this could not be obtained to criminate her.

CASE 99.—William Gates was tried at Glasgow, August 1811, for the murder of George Graham, who bled to death in consequence of a sabre wound he had received in the leg. By this the anterior tibial artery had been divided, which proved almost immediately fatal, by excessive loss of blood before medical aid was procured.

Wounds of the radial artery, in performing the operation of phlebotomy at the bend of the arm, sometimes occur in the hands of rash and ignorant persons. Such wounds in some cases lead to a fatal issue, as in the following case.

CASE 100.—“A young gentleman in the hospital bled a man, and in doing so penetrated the radial artery; thirty-seven ounces of blood were lost before he could succeed in stopping it; in three days the pressure caused so much pain that the man requested it to be lightened; this was done, and the bleeding returned; at the end of the week one of the surgeons deemed it prudent to secure the vessel, and he did so at the part where the wound had been made; the operation took an hour in performing, and it was excessively difficult to find the

vessel. On the following day there were much irritation and inflammation, and on the tenth day from the accident he died.”*

When such an event happens, from rash and ignorant persons pretending to do what they cannot accomplish, I conceive they would be held equally blameable with those individuals who have been tried for homicide by the rash application of stimulant or escharotic substances to the surface of the body, or the random administration of drastic medicines internally.

SECTION III.

Of the other Modes by which Homicide may be caused by Injuries of the Circulating Organs.

Wounds of the larger arteries and veins of the neck and extremities, when not fatal by hæmorrhage, are always of a dangerous nature, being frequently followed by some other fatal termination; and hence by such injuries homicide may be occasionally perpetrated.

When wounds of the larger bloodvessels do not prove immediately fatal by hæmorrhage, immediate death may take place by the admission of air into the veins; a circumstance now well known to produce speedy death, by reaching the heart and circulating to the brain.

CASE 101.—A very interesting case of suicide was lately read before the Medico-Chirurgical Society of Edinburgh, by Dr Handyside, in which death appeared to have taken place from the admission of air into the divided veins. The following particulars of the case have been obligingly given to me from Dr H. The subject of it was a clergyman from Ireland, who, in a fit of insanity, put an end to his life by making incision into his neck with a razor. Dr H. was called and saw him ten minutes after; very little blood appeared to have been lost. The body was examined twenty-six hours after death. The neck had been incised on each side by the hand of the opposite side; but being left-handed, the incision on the right side was

* Sir A. Cooper's Lectures, p. 177.

by much the largest and deepest of the two. The incisions were just below the angle of the lower jaw, on each side, and parallel to its body. That on the left side was two inches in length ; while that on the right was four.

The most important parts divided on the left side were the trunk of the spinal accessory nerve, the conjoined origin of the occipital and posterior auris arteries, and the posterior facial vein. Some globules of air were found to have entered into the internal jugular vein. On the right side, the incision laid bare the transverse process of the atlas, and exposed the vertebral artery, the spinal accessory nerve, the external and internal jugular veins, the anterior and posterior facial veins, and the posterior auris artery. The facial artery was slightly opened. By dividing the parts carefully under water, Dr H. found air to escape from the cavities of the heart and large vessels connected with it, by which these parts had been moderately distended, but contained very little blood, and that in a frothy state. The veins of the liver and spleen also emitted air when they were divided under water.

Besides those already mentioned, there are several other ways in which death may be occasioned by injuries of the larger bloodvessels, particularly of the extremities. These are by the formation of aneurism, inflammation of the veins, and gangrene. But as cases of death in this way by injuries must be familiar to every surgeon—as the resources of our art will, when skillfully applied, very frequently prevent death from such injuries—and as I am not in possession of any well authenticated cases of homicide which had occurred in this manner, I consider it unnecessary to dwell longer on this subject.

SECTION IV.

Concluding Remarks on Homicide by Injuries of the Circulating System.

In the preceding pages, it has been shewn that death may be caused in several different ways from injuries of the circulating organs. The most important of these are, by compres-

sion of the heart, and by hæmorrhage. In both of these cases, death takes place by *syncope* from failure of the action of the heart; and in so far resembles the mode of death occasioned by concussion or shock to the nervous system, which causes either immediate palsy or cessation of the action of the heart, or such a depression of its power as soon proves fatal.

Occasionally it becomes an important question for the medical jurist to decide, whether an individual who received a mortal wound in the heart, could have moved from the spot after its infliction, or must have immediately fallen and become unable to stir from the spot. The following case shews the importance of this question. I have been favoured with it from Professor Christison, and insert it in his own words.

CASE 102.—“A sailor was found dead in a street in Greenock; and on examination it was found that he had been shot in the breast, and that the auricles and a portion of the aorta next the heart had been torn to pieces by slugs and nails. A surgeon would certainly at first sight presume that this man died on the spot instantaneously; and so thought the inspecting surgeons. But this was too important an opinion not to be thoroughly sifted; for the prisoner, a brothel-keeper, swore that while a mob was attempting to break into his house, he fired through the door and shot the sailor, who was an active man among them. Now this defence was incompatible with the opinion of the surgeons, as the door was in a *close* eighteen feet from the street where the body was found. The prisoner was proved to speak the truth, partly by direct testimony, but still better, by a stream of blood being found between the door and the spot where the body lay; which stream, from the direction of the declivity, could not have flowed from the body towards the door. The prisoner was acquitted.”

But from the cases previously detailed to illustrate the effects of wounds of the heart, it is obvious that no positive rule can be laid down on the subject, though inferences to a certain extent may be deduced from them. For, when the ventricle of the heart has been wounded, the patient has in some cases lived

for several hours, and even longer ; in one case (Case 82) the patient lived six hours, and was able to walk several yards from the spot where he received the wound, but after he did fall he was unable to rise again. In cases of wound of the auricle, however, or of any of the large vessels within the pericardium, it is highly probable that the immediate hæmorrhage will be such as to cause instant death. This difference as to the rapidity of the effect between wounds of the ventricle and auricle is pretty obvious. In the case of a wound of the ventricle, the contraction of its muscular substance tends to close the wound and retard the hæmorrhage ; whereas in the case of wounded auricle or large vessel, there is no such contraction of the wound, and the contractions of the ventricle tend to render copious hæmorrhage instantaneous, and to prevent any, even temporary, stanching of the wound.

Another question of importance is, if the patient did not fall immediately, whether the patient would have been able to rise again after he did fall ? This happened in Case 102, in which the individual did not fall immediately when wounded, but after he did fall he was unable to rise, though he lived for several hours after.

Another kind of fatal syncope has been observed by some authors, which was first pointed out by the late Mr Chevalier, in his account of three cases which he read before the Medico-Chirurgical Society of London in 1808. The subjects of each of the cases seemed simply to faint, but shortly afterwards died. On dissection no morbid appearances were observed, except flaccidity of the heart and its entire emptiness.* I am acquainted with the particulars of several cases of the same kind, but it is unnecessary to add any thing farther on the subject. It is a subject, however, which requires to be kept in view by the medical jurist, particularly in the examination of cases of suspected death by asphyxia.

* See Medico-Chirurgical Transactions, London, vol. i.

CHAPTER VII.

OF HOMICIDE BY INJURIES OF THE RESPIRATORY SYSTEM.

Preliminary Remarks.

As the oxygenation and decarbonisation of the blood by the respiration of atmospheric air, is a process that is indispensable to life, so any obstruction to or other injury impeding this function, very frequently proves fatal. Hence, such injuries to the respiratory system form causes of homicide, suicide, and of accidental death, which are not unfrequent.

The respiratory system consists of so many different parts, viz., the nose and fauces, the larynx, trachea, lungs, thorax, and diaphragm, that the causes of death by injuries of this system are both numerous and various, and they are also peculiar, from the remarkable and important functions of these parts.

The causes of death by injuries which affect the respiratory system, are various in their modes of operation. Some of these occasion sudden death simply by asphyxia, others more slowly by inflammation, while, in a third class of cases, death takes place partly by a combination of both of these effects having been produced by the injury.

In treating of the subjects of this chapter, we shall begin with death by asphyxia, describing its nature, symptoms, and appearances after death, its various causes and species; we shall then treat of wounds of the thoracic cavity, and the other causes of death by injury of the respiratory system.

SECTION I.

Of Homicide by Asphyxia.

Death by asphyxia, or beginning at the lungs, is that form of death which is occasioned by an obstruction or hinderance to the due arterialization of the blood. The causes of asphyxia, therefore, are those which either prevent the access of atmospheric air to the respiratory passages, or obstruct its ingress to the air-cells of the lungs. Hence the fatal effects of submersion of the head in water or other fluids; in noxious gas; the occlusion or compression of the nose and mouth; the compression of the larynx, trachea, or chest; the destruction of the functions by which the lungs are inflated, as by the free access of air into the cavities of the chest, or the division of the respiratory nerves; or by the compression of the lungs by the presence of blood or air in the thoracic cavity. These constitute the causes of death by drowning, smothering, strangling, and other injuries, which will be separately commented upon.

But before entering upon the consideration of these forms of death individually, we shall give a general view of asphyxia, which will be applicable to each of them; for the phenomena and appearances are nearly the same, in whatever way the asphyxia has been occasioned.

The phenomena which occur in cases of asphyxia have been divided into three stages. The first is characterized by the urgent sensation which prompts to acts of inspiration, and consequently laborious, though ineffectual, attempts to appease that sensation, by the violent action of all the muscles of inspiration. In some cases these are accompanied by other voluntary or instinctive actions, but still under the guidance of sensibility. This stage, in cases of complete obstruction to the access of air to the lungs, is generally over in a minute or two, and lividity of the surface takes place before it terminates. The second stage is characterized by insensibility, rapidly increasing, and attended with irregular spasms or convulsions. In the third stage there is a cessation of all effort, and of all outward

signs of life, while the heart's action and circulation are known still to go on for a short time *

By the complete and sudden obstruction to the access of air to the lungs, "the two first of these stages," says Dr Alison, "are very generally over within three minutes, seldom extending to five, and the circulation through the heart has very generally ceased within less than ten minutes from the commencement of the obstruction." The length of time during which the privation of air can be borne with impunity may be somewhat extended by habit, as in the cases of Indians and others, who train themselves to the trade of diving, and become capable of remaining four or five minutes under water, without experiencing from it any bad effects.

"In cases of disease terminating in death by asphyxia, all these stages may often be observed to be distinctly gone through, although in a very gradual and somewhat irregular manner; the dyspnœa and lividity being succeeded by delirium, often by spasms, and ultimately by coma, and the respiration coming to a stand in general a little before the action of the heart." †

The appearances on inspection after death in cases of asphyxia deserve very particular attention; for we are sometimes called upon to decide, in the case of an individual found immersed in water or suspended by the neck, whether his death had been caused by asphyxia, or had been occasioned in some other way before having been so immersed or suspended.

Upon external examination of the body after death by asphyxia, livid marks are found on different parts of the surface, not depending altogether on position. Very often there is general lividity of the head and neck, accompanied with swelling or fulness of these parts. In cases of death by strangling, this is of course greatest, and sometimes amounts even to blackness; but it is an appearance, also, which may be entirely wanting. Blood or bloody froth is often found to have issued from the nose, mouth, or ears.

Internally, the appearances are somewhat various, according to the manner in which the asphyxia had been occasioned, and whether death had taken place quickly or slowly.

* Alison, *Cyclop. of Anat. and Phys.* article Asphyxia.

† Ibid.

The most important and characteristic appearance which is observed on dissection after death by asphyxia, is the great accumulation of blood in the right side of the heart, its great veins, the pulmonary artery and vessels of the lungs, while there is a comparatively empty state of the left side of the heart, the large pulmonary veins, and the aorta. This gorged state of the right side of the heart and lungs is greatest where the asphyxia has been slow and gradual, by the access of air to the lungs not having been completely prevented. When asphyxia, on the other hand, has caused death quickly and suddenly, there is little or no unusual congestion of blood in the lungs or heart.

Besides the congested state of the heart and lungs, the veins of the different organs in the abdomen, particularly those most dependent, are generally found to be unusually distended with blood. The vessels of the brain, too, are in some cases more distended with blood than is commonly observed in cases of death by other causes.

In cases of death by asphyxia, as in most cases of sudden and violent death, the blood is usually found in a fluid state, or very imperfectly coagulated. The blood, therefore, flows freely out from the large veins when they are divided. Venous blood may sometimes be found also in the larger arteries.

It has also been observed that the body is generally disposed to more rapid putrefaction when death takes place from asphyxia than from other causes.

The changes which take place in asphyxia are, *first*, a stagnation in the capillary circulation of the lungs, from the want of the stimulus given by duly oxygenated blood; *second*, The transmission of venous blood through the lungs not being at first completely suspended, some is sent to the brain, and causes insensibility; *third*, Being more slowly circulated through the pulmonary vessels, blood is no longer delivered to the left side of the heart in sufficient quantity to keep up its regular action. Thus animal life is suddenly extinguished by the noxious influence and diminished quantity of venous blood sent to the brain, while organic life is more gradually brought to a stand

by its baneful influence on the lungs, and consequent failure of a proper supply of blood to the left side of the heart.*

Before concluding our general description of asphyxia, it may be remarked, that the respiration is the only link which immediately and necessarily connects organic with animal life. Hence the extinction of animal life (or those vital functions which require some mental act) affects the organic functions just as respiration does. And, therefore, in death beginning at the brain or by coma (whether from injury or narcotics), the circulation and other organic functions are brought to a stand, as in cases of death by asphyxia; thus shewing how death by coma, or beginning at the brain, resolves into, or occasions death by asphyxia; the coma, however, being the primary affection; the asphyxia the second, or the consequence of the former.

From what has just been said, it will afterwards appear how difficult it is, in some cases of sudden death by asphyxia, after intoxication, to determine whether it has been owing to narcotic insensibility, or violence applied to the respiratory organs.

SECTION II.

Of the Different Forms or Species of Asphyxia.

Sudden death by asphyxia may take place from different causes, such as occlusion of the external openings of the air-passages, compression of the larynx or windpipe, immersion of the head in water or other fluid, compression of the chest or lungs, and excessive intoxication; and as each of these forms of asphyxia is attended with some special or characteristic peculiarities, we shall now treat of them separately, under the different terms usually applied to them, of Suffocation, Strangling, Hanging, Drowning, Smothering, or Compression of the chest and lungs, and Asphyxia from excessive intoxication, from accident, and from disease. These forms of violent death being

* Allison.

frequent causes of homicide, suicide, and of accidental death, demand very particular attention from the medical jurist.

A. *Of Suffocation.*

By Suffocation, we are to consider that form of asphyxia produced by the mechanical occlusion of the external openings of the air-passages. It may take place accidentally by an unfavourable position of the head, or by the nose and mouth being pressed into the pillow, when the individual is in a state of intoxication, or by foreign bodies getting into the larynx.

Forcible suffocation, by securing the nostrils and mouth with the hands, can only be accomplished by several persons assisting in the act—by a very powerful person against a weak one—by the victim being stupified by intoxication, or during the state of sleep.

After death by suffocation the usual marks of asphyxia are generally present; there is also an absence of disease or other cause to account for death; marks of nail scratches, abrasions of the cuticle, or other violence about the mouth and throat; and, in the cases of infants who have been wilfully and forcibly suffocated, feathers and other soft substances are often found about the mouth or throat.

CASE 103.—On the 2d April 1832, I inspected the body of a young man, about seventeen years of age, who had died under the following circumstances:—This lad seemed to be one of the common thieves who infest the High Street, and who have haunts in the different closes leading from it, where numbers of them meet, dispose of their stolen goods, and remain carousing while their illegal gains last. One of these houses, kept by two young females, formed the rendezvous of six or eight young lads about the age of the deceased.

On the evening of the 31st March, the deceased went in a state of intoxication into this house. He there asked for more whisky, upon which one of the females went out for half-a-pint. When this was obtained, he drank a considerable part of it, by which he became completely intoxicated, was unfit to stand or move, and was lifted from the floor into bed; he then vomited

several times and fell asleep. In the course of the same evening other three boys came into the house tipsy, and lay all night in the same bed with him. Next morning when they awoke they discovered that he was quite dead, lying with his face upon the pillow—his tongue was projecting from between his teeth—his face livid and swollen.

Sectio cadaveris.—On examination, the body was evidently that of a stout young man who had been previously in good health. I found the tongue projecting from the teeth—the lips very livid—face livid, but reported to be less so than it had been on the previous day; the lividity still very considerable about the ears and back of neck. A small mark of injury on the left temple; the skin of neck under chin formed several distinct folds from the position of chin, which had been made to press upon the neck.

On dissection, the veins of the head, both external and internal, as well as the venous sinuses, were gorged with fluid dark coloured blood, which flowed freely out; choroid plexus very turgid with blood. Some bloody serum at base of cerebellum. The quantity of serous fluid in ventricles rather greater than usual. Some blood in heart partly coagulated. Lungs natural; dark coloured fluid blood flowed from their veins when cut. Congestion of blood in them not considerable. Stomach empty. No smell either of spirits or laudanum perceptible. Stomach of natural colour, and its inner coat could be easily separated from the others. Small intestines rather more red and vascular than usual.

In this case death had evidently been caused by asphyxia, which had most probably been produced partly by the excessive intoxication, and partly by an unfavourable position of the head for respiration.

CASE 104.—Burke, the notorious murderer to supply the anatomical tables, was tried at Edinburgh, 24th December 1828, for killing Marjory Campbell or Docherty. The mode in which he effected his purpose, as detailed by his accomplices at the trial, was by throwing down his victim, then holding her down by the weight of his body lying above her, and compressing the nose and mouth with one hand, while the other

was used in pressing up the chin and throat. In this position he remained holding his victim till life was extinct, which was only for a few minutes. Campbell had been liberally entertained by the Burkers, had got some strong drink, but was seen singing and dancing at eleven o'clock, and about twelve she was dead. Her body was inspected by Mr Newbigging and Professor Christison, the latter of whom published an account of the case in the 31st volume of the *Edinburgh Medical and Surgical Journal*, from which the present outline has been taken. The appearances on dissection were the following:—

“ Joints flaccid ; features composed, red, and rather more turgid than natural ; lips affected with dark livor ; conjunctiva of the eyes, even in the horizontal position of the body, much injected with blood ; a little fluid blood on the left cheek, proceeding apparently from the nostrils ; tongue not protruded or torn by the teeth ; the scarf-skin under the chin much ruffled, and the surface of the true skin dry and brown where denuded, but without blood or surrounding ecchymosis. Integuments everywhere very free of lividity, except on the face. .

“ On the inside of the left leg, a little above the ankle, and on the outside of the right leg, a little below the calf, several considerable bluish-black discolorations, one as big as a crown, without swelling, but arising from black, thick, though not coagulated blood, incorporated with the whole thickness of the true skin, and effused deeply into the cellular tissue beneath. A similar large spot on the outside of the left elbow, and a superficial laceration on the outside of the left fore-arm, with blood effused into the cellular tissue and substance of the skin around. A slight laceration on the inside of the upper lip opposite the left eye-tooth, with surrounding effusion of blood into the cellular tissue. A small soft tumour near the occipital angle of the left parietal bone,—found during the subsequent reflecting of the scalp to arise from thick, semifluid blood, effused between the scalp and periosteum, and also between the periosteum and bone. A similar extravasation of blood above the middle of the temporal ridge of the right parietal bone, and another small effusion above the left eye-brow were also found

during the reflecting of the scalp ; but these were not indicated by any external swelling or discoloration.

“ The bones of the skull, together with the brain, cerebellum, and all the other organs within the head, quite healthy. A little more turgescence of vessels than usual.

“ Organs in the abdomen perfectly healthy, with the exception of the liver, its investing membrane being here and there covered by short, opaque, white lines, and the grey matter of its structure rather more abundant than usual,—the incipient stage apparently of the liver disease of drunkards. The stomach distended, and containing about a pint of thin greyish pulp, like half digested porridge, entirely free of any spiritous or narcotic odour.

“ No effusion of blood or laceration of the parts around the windpipe ; no injury of the cartilages ; the os hyoides and thyroid cartilage farther apart than usual, in consequence of stretching of their interposed ligament. On the inside of the windpipe some tough mucus, not frothy, with a few points of blood between it and the membrane, which last was healthy. Organs within the chest perfectly natural ; the lungs remarkably so, and unusually free of infiltration ; blood in the heart and great vessels, and indeed throughout the whole body, very fluid and black, and accumulated in the right cavities of the heart and great veins.”

Some injury had been done to the neck after death, from the force required to pack the body into a tea-chest. This had occasioned rupture of some of the ligaments of the spine, and an extravasation of blood among the muscles ; a circumstance at first perplexing, but which was afterwards satisfactorily accounted for.

The opinion given by Mr N. and Dr C. at the precognition in this case, was, “ that the marks of contusions were almost certainly inflicted during life ;—that the injury of the spine might have been caused seventeen hours after death, as well as during life ;—that the question, whether death arose from natural disease or violence, did not admit of a positive answer ;—that the fluidity of the blood, the ruffling of the cuticle over the throat, the lividity of the face without lividity elsewhere,

and the great redness of the eyes, with the blood found where the body had lain, were signs, which, although they did not amount to proof, might of themselves lead to a suspicion of death by strangling;—and that when this circumstance was taken in conjunction with the signs of other violent treatment by contusions during life, the perfect state of health of the deceased a few hours before her death, and the want of any appearance in the dead body to indicate natural death, it appeared to us *probable* that she had died by violence. These views coincided with the opinion of my colleague Dr Alison, who was also consulted by the Lord Advocate. Our report was delivered before we were made acquainted with the confession of the accomplices as to the manner of death, and indeed before we were aware that any confession had been made at all. Throttling was the form of strangulation we suspected.”

The supposition of accidental suffocation from excessive drinking was in this case untenable from the medical circumstances. Though somewhat intoxicated, she was so far sensible at eleven o'clock that she was able to dance and sing; at twelve she was dead. Now, death from simple intoxication or from opium in so short a time was impossible.

In his remarks on this case, Dr Christison adds, that the conviction in the public mind, that a well informed medical inspector should be able to detect death by suffocation simply by inspection, and without a knowledge of collateral circumstances, is erroneous, and may have the pernicious tendency of throwing medical inspectors off their guard, “by leading them to expect strongly marked appearances in every case of death by suffocation. That such appearances are very far from being always present, ought to be distinctly understood by every medical man.”

CASE 105.—Alexander Marshall was tried and convicted at Perth, September 28. 1835, for the murder of his wife, by having caused her suffocation. On inspection of the body after death, Mrs M. was a woman well advanced in years, and wanted the greater part of her teeth. The jugular veins were very prominent; the face and forehead were covered with blue

spots ; no external mark of violence except an abrasion of the cuticle of the right cheek. In the mouth there was a quantity of the debris of lint or tow. When the parts were dissected, considerable ecchymosis was found on each side of the trachea. The windpipe and air-tubes contained bloody froth. The blood in the heart and other parts was dark coloured and fluid. The other parts of the body were natural.

The proof of Marshall's guilt rested chiefly on the circumstances of his wife having been seen in her usual health, by several of her neighbours, about two hours before she was found dead, and no other person had been in the house with her except her husband. When found, her mouth was stuffed with tow.

In this case it is presumed to be highly improbable that the deceased would have put the tow into her own mouth for the purpose of suffocation ; but the marks of forcible compression of the throat, which could not have been inflicted by herself, was proof that violence had been inflicted by some other person. Now, the only person near her was her husband, who came out of the house immediately after she was dead, and pretended not to know where she was. Hence the inference of his having been the murderer. It had been perpetrated without the neighbours in the adjoining house having heard any cries or noise, though they were only separated by a thin partition.

CASE 106.—In October 1833, along with Dr Christison, I inspected the body of Mrs M'M—— at the police-office, supposed to have been strangled by her husband on the previous morning, perhaps from thirty-four to thirty-six hours previous to the inspection.

Externally.—The deceased seemed to be an Irishwoman of the lowest rank, and about 40 years of age, and was said to be much given to intemperance. Face and neck livid, there had been some blood issuing from the mouth. Several recent scratches on neck, under the chin ; eyes much injected with dark-coloured blood ; tip of tongue projecting from between the teeth. Some

slight appearance of the marks of a tight ligature about the neck at the sides of the larynx. There were marks of contusions on the upper part of the head above the left ear, and on the left arm above the elbow ; the latter seemed to be less recent than the others. Another slight mark of contusion on right leg.

Internally.—The brain and membranes natural, it was rather more injected than usual with dark-coloured fluid blood. The choroid plexuses were quite of a livid fleshy appearance. The veins of the neck and upper part of chest, when divided, poured forth fluid dark-coloured blood very copiously. The right side of the heart and large vessels contained dark-coloured fluid blood. Heart natural, except a slight dilatation of the arch of the aorta. Lungs natural in colour and consistence, though collapsing less than usual ; when cut into, the incision was a livid fleshy colour, and venous blood was copiously poured out. The congestion, particularly in the right, seemed considerable ; no blood or froth in the larynx or trachea ; tongue coated with a white fur ; abdomen natural ; stomach contained some small portions of half-boiled potato, and some boiled barley-corns ; no smell of spirits ; liver of a light colour, and mottled, but not to a great degree ; upper part of the spine and spinal cord healthy. *Opinion.*—It seemed to us evident that this woman had died from suffocation ; but whether from accident, suicide, or murder, was a very nice point to determine, and could only be decided by a knowledge of all the circumstances of the case, which we did not then possess. Death might have been by accident ; by lying on her face and falling asleep in a state of intoxication ; she might have strangled herself ; or death may have been occasioned by another person, by means of a handkerchief twisted round her neck. The latter is probable, from the appearances on dissection, and other circumstances.

The following are the circumstances which I learned from the general evidence in this case.

The deceased and her husband had been in a state of intoxication from spirits for several days, and were constantly quarrelling, beating one another, and disturbing the neighbourhood. On the night in question, they had both arrived at home so

drunk, that the watchman finding them lying at the outside of their house door, assisted them in, and laid them in bed. There being two beds in the house, one was laid in each bed. About six o'clock in the morning, the husband rose and went out. He went in quest of his children, who had taken refuge in a neighbouring house, in consequence of the quarrelling and bad usage they met with at home. The clothes and pillows had been removed from the beds some time previously, partly to exchange for whisky, and partly by the children to their new abode.

Shortly before the body of the woman was found dead in the house, a man acquainted with the prisoner saw him standing within the window of his house, which was open, and observed blood upon his hands; prisoner requested him to hold his tongue and say nothing about it.

One of the daughters, on entering the house soon after, found her mother lying either dead or in a faint, as she thought. She came out and apprised her older sister, who, on seeing her mother's body, exclaimed that her father had murdered her mother. Several neighbours went in, found the body of the deceased lying upon her back on the bed, cold, stiff, and some blood issuing from one side of the mouth, her face and neck dark and discoloured, and a shawl around her neck. The shawl had been put on in the ordinary way, closed over the breast, and tied at the back; and several of the witnesses asserted that it was not so tight as to have injured the deceased. The woman who removed it, said it was so slack that it was easily removed over her head without untying the knot. On examining the house, there did not appear to be any way in which the woman could have committed suicide, and there was no pillow on the bed in which her face could have sunk so as to impede respiration.

This was evidently a case of death by asphyxia, and probably by strangling.

The circumstances attending this were certainly very much against the prisoner, but did not amount to proof, either direct or circumstantial, of murder.

CASE 107.—Bishop, Williams, and May, were tried at the

Old Bailey, 2d December 1831, for murdering (or Burking, as it has been called) Carlo Ferrier, an Italian boy, for the purpose of selling his body for dissection.

When the body of the boy was presented to Mr Partridge at the King's College, for an anatomical subject, the appearance which the body presented led him to suspect that he had died by violence, so that he immediately called the police, and had the men in possession of the body secured.

The appearances observed upon the body were, the remarkable freshness and recent state of the body (then very unusual in the dissecting rooms), the swollen and congested state of the face, bloodshot eyes, swollen lips, and a wound upon the left temple.

Upon dissection, some extravasated blood was found under the scalp. The contents of the head, chest and abdomen were in a healthy condition, but there was some coagulated blood effused among the muscles of the neck, and on the spinal cord.

I am inclined to think that, in this case, the peculiar state of the lungs and heart caused by asphyxia, was overlooked by the inspectors, who gave a very vague opinion as to the cause of death.

According to the confession of Bishop and Williams, after their conviction, they murdered this boy and other two individuals, by stupifying them with liquor, and suspending them by the heels, with the head immersed in a well, till they were dead.

The above cases illustrate the appearances generally observed in cases of asphyxia from suffocation. They are in general sufficiently well marked, when particular attention is directed to them, in order to determine death by asphyxia, or at least to render it probable ; more especially when they occur without any other cause for sudden death being present ; but the confirmation of this opinion, and the mode or particular kind of asphyxia, can only be determined by other circumstances, these are partly medical, but, as will afterwards be shewn, they consist of matters chiefly of general evidence.

B. *Of Strangling.*

Strangulation, or death by strangling, is the forcible compression of the windpipe so as to prevent respiration and produce asphyxia.

Death from strangling only differs from that by *hanging* in the person not being suspended. In hanging, the weight of the body assists in causing suffocation. Hence homicide by strangling requires greater violence to accomplish it than hanging, and therefore marks of injury upon the neck are generally more distinct.

The most common mode of producing death by strangling is by means of a cord. It may be accomplished, however, in several ways, as by drawing a neckcloth very tight about the neck, or the compression of the larynx with the thumb and forefinger, more especially when the victim is either intoxicated or asleep. The different ways by which it may be accomplished should be kept in recollection in the investigation of any special case.

Death by strangling has sometimes happened accidentally. This occurred in the case of an old woman, a salt carrier, who on her journey rested her creel upon a wall; it fell over the wall, and the belt of it being round her neck, she was strangled by the weight of the creel. The same happened to a fish-woman near St Andrew's, a few years ago. A similar case of a boy is mentioned by Dr Smith, where a cord with a weight attached to it, got so entangled about his neck that he was strangled. (For. Med. p. 294.)

It very rarely happens that suicide is effected by strangling, but this has several times occurred, having been accomplished by the individual forcibly twisting his neckcloth with a stick. See three cases by Beck, p. 290.

Death by strangling is so much more frequently the work of another person than by accident or suicide, that, when it occurs, the presumption generally is that murder has been committed. It must be very difficult to effect suicide in this way, as the strength fails whenever the compression of the throat or windpipe begins.

The appearances observed after death by strangling are the same with those which I described as occurring in asphyxia, combined with marks of compression of the windpipe. As great force is necessary to cause death by strangling, and particularly as the murderer is not in general so accomplished as to know the precise place where it can be most easily effected, he has generally accomplices in the deed, and evident marks of the strangling will be found on the neck.

Strangling in India.—A few years ago, a very remarkable and extensive association of secret murderers by profession, called “the Thugs,” was discovered in India. This profession has been carried on for many ages. Their chief, or perhaps only object is plunder, and this they obtain by strangling and burying their victims, to which operations they attach religious ceremonies. In accomplishing their object, two or three “*thugs*” are necessary for dispatching each victim; and when they intend to murder a whole party of travellers, they ingratiate themselves and accompany them on their journey to a remote and convenient place. Upon a signal being then given, the whole party are strangled at once, the thugs having been sufficiently numerous for the purpose before they decide on the execution of their work. Their mode of putting their victims to death is strangling them by means of a handkerchief, the thong of a whip or a sash. This is put round the neck with a peculiar noose, by one individual who has been gradually trained to expertness at his calling, while the arms and legs of the victim are held fast by one or two others less *au fait*. When thus held and strangled, the victim dies in a few seconds.

This secret trade has been long well concealed, though followed by great numbers of persons. They never molest their neighbours at the villages where they live, and by their conciliatory manners and free spending of money, they become even well liked in these quarters.

This mode of committing murder in India by strangling, bears a striking resemblance to the secret and diabolical mode of murdering practised by Burke and his associates, in Edinburgh, some years ago. “No system of secret murder has

ever existed so extensive, so completely organized, or so successfully pursued as that of Thuggee. The self-devoted assassins were mere bunglers compared with the Thugs. Our *Burkers*, with their sneaking, solitary, midnight murders, do not deserve to be named in the same day with the members of a confederacy who traversed every part of India in gangs of hundreds, and throttled sometimes as many as threescore victims at once. Besides, the assassins and the *Burkers* flourished for a time, and passed away,—both their beginning and their end are known; but the commencement of Thuggee is lost in the remotest antiquity, and it has been practised generation after generation down to our own times.

“The principle of assassination was religion; the principle of *Burking* was gain. In Thuggee they are both united. Gain sanctioned by religion; human rapacity exercised under the supposed approbation of the Deity, is its principle.”*

When strangling has been so produced that the return of the blood from the head has been interrupted, there is lividity or blackness of the face—redness of the eyes—effusion of blood from the ears, nose, or mouth, as also sometimes into the substance of the neck, occasioning the appearance of ecchymosis. Strangling has sometimes been effected by the forcible compression of the larynx and trachea with the fingers. See cases of this by Beck, p. 289. This form of strangulation has been called *throttling*. In this form of strangling, as the pressure does not encompass the whole circumference of the neck, and is not long continued, the return of blood from the head is not so much prevented as when a ligature surrounds the neck; so that the appearance of turgescence of blood about the head is less marked, or may be entirely wanting. Occasionally there is also abrasion of the cuticle, nail marks, or scratches about the neck and throat.

CASE 108.—John Boyd from Greenock, was tried and convicted at Glasgow, September 1834, for the murder of his wife, by having strangled her. Upon the inspection of Mrs Boyd's

* Edinburgh Review, No. 130, Jan. 1837, p. 373-74.

body, several marks of contusions were observed on different parts of the arms and legs, as also a scratch and contusion on the lower part of the chin. There was considerable swelling, accompanied with discoloration of the anterior part of the throat, which was found to contain extravasated blood. This ecchymosis of the neck extended from the lower jaw, about three inches downwards, on each side of the trachea; and it also existed in the substance of the left side of the thyroid gland. The jugular veins were fully distended with blood. The membrane lining the trachea was more red on one side than the other for about three inches. The lungs were dark coloured, and much congested with blood. The heart was empty. All the other viscera were in a healthy condition, and there was no indication of disease to account for death.

Mrs Boyd seemed to have been strangled by pressure made upon the throat with the hands. The medico-legal inspection was made by Dr Spiers and Mr C. Auld of Greenock, and Dr Corkindale of Glasgow was afterwards consulted concerning the cause of death.

CASE 109.—In the body of an infant, examined by Dr Corkindale at Glasgow, in May 1822, where he conceived that death had been caused by strangulation, there was discoloration and extravasation of blood in the parts about the wind-pipe.

CASE 110.—Archibald M'Lennan was tried at Inverness, September 1830, for the murder of his wife, by having bruised and strangled her, and afterwards thrown her body into the sea. When the body was inspected, several wounds and contusions were found on different parts of the head. At one of these, which had been inflicted by a blunt instrument on the crown of the head, there was a considerable effusion of dark-coloured blood between the scalp and the skull. There were several livid spots on each side of throat, giving it the appearance of having been grasped forcibly by the fingers of another person. Abrasions of the cuticle under the chin, at the angle of the jaw, and on each side of the neck, were also present. There also existed marks of contusions on the right side of the abdomen, and on the several parts of the arms and legs. No

examination seemed to have been made of the internal parts. Death was ascribed to blows and strangling or drowning.

The guilt of the prisoner was considered by the judges * to be clearly established, by circumstantial evidence confirming the medical opinion given upon the case. From the marks of a violent struggle which had taken place near the side of the water where the body was found, and near which M'Lennan and his wife had been seen, together with the marks of violence observed on the body, it seemed highly probable that Mrs M'Lennan had been killed by blows on the head and strangling, before having been cast into the water. But the jury considered the case "not proven."

CASE 111.—In the case of Wilson, tried at Edinburgh, February 1803, for the murder of his wife by blows and strangling, there were livid marks at the margin of the lower jaw and around the neck of Mrs Wilson, and a considerable quantity of blood in the trachea.

Death may be effected by strangling without leaving any marks on the neck. A cord, however, generally leaves a mark, and in some cases causes an effusion of blood under the skin; occasionally the mark does not appear completely to surround the neck, though the muscles of the neck, as also the cartilages of the larynx, are sometimes lacerated.

When the cord is removed some time previously to the inspection of the body, the lividity, swelling, and blackness of the face, and other signs of turgescence of blood about the head, may have gone off from the fluidity of the blood, and an elevated position of the head.

Some natural appearances in the dead body are apt to be mistaken for marks of death by strangling. These are the co-existence of lividity of the face from a neckcloth which has been too tight, with a mark on the neck from the fold of the skin which occurs in corpulency. In such cases there is no ecchymosis or abrasion of the cuticle, as in real strangling; and if swelling of the neck exists, it could only be the result of

* Alison's Criminal Law, p. 82.

strangling, when the swelling is found above the cord; ecchymosis could not be produced by tying a cord after death.

CASE 112.—On the 9th February 1835, I inspected the body of J. H., a tailor in a close of the High Street, but which had been removed to the police-office. He had been found to have died suddenly, and under suspicious circumstances. This man appeared to have been about 50 years of age, and of spare habit, but not emaciated. The only unnatural appearance which the body presented externally, was the remarkable uniform dark purple-red colour of the head, face, and upper third of the neck. This deep red livid colour stopped abruptly all round the neck, and appeared quite distinct from the natural colour of the skin lower down. The skin of the neck above the sternum was also slightly livid; but interposed between this and the lividity of the upper part, there was a space all round, about an inch and a half broad, of the natural whitish colour of the skin. In the middle of this pale band which surrounded the neck, there was a marked indentation, like that formed by a cord. The livid appearance was less intense at the back than the other parts.

The vessels of the scalp were much injected with blood, which, from its fluid state, flowed out copiously when they were divided. The vessels of the brain, particularly the veins, were also much distended; and there was some serous fluid in its ventricles. The right side of the heart and pulmonary veins were filled with dark coloured fluid blood, having in it only a very few small coagula. There was no ecchymosis of the neck, and all the other parts of the body were quite natural. There were no other indications of violence upon the body,—no appearance of struggling,—the eyes were not suffused, and the tongue was not projecting from the mouth.

In the above case there were sufficient marks of death by asphyxia, and some indications of strangulation. The appearances presented by the head and neck, indicated compression of the windpipe and large veins of the neck. Professor Traill was consulted concerning the case, and we agreed in thinking that death had been caused by asphyxia; but, as there were

no other indications of violence upon the body, we could not say whether the asphyxia had been caused by congestive apoplexy, or suffocation.

From the general evidence it appeared that the deceased went out on Sunday morning, and after having got a sufficient quantity of whisky, he returned home early in the forenoon in a state of intoxication, and lay down in bed for the day. Some of his children remained in the house with him, but his wife went to church; and when the afternoon service concluded she paid a visit to a friend. About five o'clock she returned home and found her husband dead. Upon this she called two neighbours, who came immediately to her assistance. They found the man lying in bed dead and naked, except a handkerchief about his neck. They exclaimed that he had been "strangled;" the wife seemed much confused, said nothing, but snatched the handkerchief from the neck of the deceased. To appear more innocent, she afterwards denied that he had a handkerchief about his neck, which rendered her guilt more suspicious than otherwise.

The eldest of the children, who had been left in the house with the deceased, gave a tolerably distinct and consistent account of his death, by his head having fallen over the upper part of the bed.

It therefore appeared most probable that the state of intoxication, dependent position of the head, and ligature around the neck, had produced congestive apoplexy and coma, followed by asphyxia.

In this case several of the indications of forcible strangulation were wanting,—such as an anxious expression of countenance, blue lividity of the lips, suffusion of eyes, blood issuing from the nose and mouth, and bloody mucus or froth in the trachea.

It is always of much importance to ascertain whether in any given case, death by strangling has been the result of accident, suicide, or murder. But being very rarely the result of accident, it is to the other two that our more particular attention is necessary.

Strangling for the purpose of murder, may be distinguished

from suicide, by the relative position of the stick employed for twisting the cord or ligature on the neck, and of the body, when this is the mode which has been resorted to. If the stick is not fixed, it must have untwisted itself when the person became insensible, if suicide has been attempted; if the stick is not fixed, and is also not untwisted, suicide is out of the question. If the stick is fixed, it is of importance to examine whether or not the position or manner in which it is fixed, is compatible with the person having done it himself.

Murder may sometimes be distinguished from suicide by the degree of violence which has been employed in the accomplishment of it; such as marks of throttling consisting of abrasion of the cuticle,—marks of compression of the windpipe,—the marks of a cord without any cord being upon the neck,—or a cord existing upon it with a peculiar kind of knot, or a complication of knots, rendering murder presumptive.

Concomitant marks of other violence having been inflicted upon the body before death, when observed, form a strong confirmation of murder.

The position of the body,—the state of the hands, such as their having upon them any marks of violence, of lividity, or marks of having been fixed, are also of great importance in drawing an accurate conclusion. The examination of articles around the body, also, as to their state of arrangement or disorder, is important. Suicide being generally the result of deliberate intention, the clothes and other things around the deceased are generally in a state of complete order; the state of the countenance, too, is worthy of attention, by observing whether it is in a state of placidity, or indicates that the individual had been engaged in a struggle. The situation of the deceased having the appearance of complete solitude is also of some importance. But these circumstances which I have enumerated cannot be altogether depended on, as they may have been got up for deception. The person may have been strangled, and other injuries afterwards inflicted on the body, or it may have been thrown into water to simulate suicide.* Hence such circumstances should be very carefully examined, confirmed by

* See Cases by Dr Smith, p. 238.

collateral evidence, and well weighed, before they are allowed to lead to a conclusion.

C. *Of Hanging.*

Death by hanging consists in the suspension of an individual by the neck with a cord or other ligature. It forms the common mode of executing criminals in this country.

This mode of death differs from that of strangling only in this being effected by suspending the body by the neck with a ligature. In hanging, the position and weight of the body supply the place of the violence required to kill a person by strangling him. As strangling is more common for the purpose of murder than suicide, so hanging is, on the other hand, more frequently resorted to for the purpose of suicide, than practised by the assassin.

Death takes place by asphyxia from hanging, in one of two ways. 1. It may take place from cerebral congestion and apoplexy causing coma; or, 2d, From suffocation by stoppage of the respiration. In ordinary cases, death is probably produced partly by both of these causes.

Whether the immediate effects of suspension is congestive apoplexy or suffocation, will depend on the situation of the cord around the neck. If it be so tied as to compress the jugular veins, a great quantity of blood must immediately accumulate in the head, and cause congestive apoplexy. But if it passes over the lower edges of the under jaw, it is prevented from compressing these vessels, so that the apoplectic state does not immediately take place from this cause. It is afterwards induced, however, from the state of asphyxia by suffocation, which soon takes place, by the circulation of venous blood through the brain. By suspension, the larynx or trachea are so compressed that respiration is interrupted, and asphyxia soon follows. Hence death takes place from a stoppage of the action of the heart from asphyxia, produced either by coma or suffocation, or partly by both conjoined.

The proofs we have of an *apoplectic* state affecting the functions of the nervous system, are, 1st, The state of *sleep* or coma,

said to be instantly produced by those who have been recovered after either accidental or wilful suspension. This state of sleep is said to be so profound as to prevent the consciousness of any thing after the instant of suspension. 2d, The marks of congestion about the head, shewn by swelling and lividity of the external parts of the head and neck, sometimes accompanied by hæmorrhage from the nose or mouth, congestion of the veins of the head and neck, sometimes attended with rupture of the vessels within the skull. 3d, Death being produced, though after a longer time, when an opening is made into the trachea of an animal after being suspended.

When death takes place from asphyxia caused by the compression of the larynx or trachea, and without compressing the great bloodvessels of the neck, the countenance remains pale, and the head exhibits few of the signs of cerebral congestion. Convulsions take place—the respiration is interrupted—venous blood circulates to the brain—insensibility, coma, cessation of the action of the heart and death follow. In death by hanging, relaxation of the sphincters takes place, accompanied with evacuation of urine and fæces; and in males, priapism and emission of semen often occur.

Inspection after death, in cases of death by hanging, shews signs of cerebral congestion and asphyxia, with the addition of a peculiar mark on the neck caused by the cord of suspension.

There are in general lividity and swelling of the integuments of the head and face—distention of the bloodvessels of the eyes—the eyelids half open, and the eyeballs projecting—the tongue projecting from the mouth—sometimes wounded by the teeth in the convulsive motions of the jaws—the countenance distorted—bloody mucus issuing from the mouth and nose, to be seen in those who have died by hanging, as in the following case.

CASE 113.—With the following case I have been favoured by Dr J. G. Stuart, formerly in East India Company's Service. "Hema Rewa, a Coolee, well made, aged about 33, of a light black colour, was condemned for robbery. He was kept on low diet and in close confinement from the 12th September 1827 till the time of his execution, or about the end of October. He fell like a shot, and remained motionless for some seconds after

the drop was removed ; dreadful convulsions then came on, and continued for a considerable time : after they ceased, the chest continued to make some vain attempts to relieve itself, and then all was over. The body was cut down in an hour, and laid on the ground. Two hours after this it was opened. On removing the skull-cap, great quantities of blood poured out—the brain, with its membranes and plexuses, was quite turgid with blood, but no vessel had given way. The neck and wind-pipe were uninjured. The mark of the rope was large, indented, half black, half red, and confined to the skin. The lungs were light and natural. Both the right auricle and the veins from the neck were very full of fluid blood. The mucous coat of the stomach, and in some places of the bowels, looked like the muscle of a consumptive patient. The urinary bladder was half full—there were no other marks of moment.”

In consequence of the blood remaining fluid in persons who have suffered this species of death, the position in which the body may have been placed may have removed the appearance of congestion about the head and face. The greater part of the blood may also be removed from the body, by opening the jugular vein, and destroying the congestive appearance ; but as the blood is not so easily removed from the small vessels of the eyes, the appearance of congestion remains there ; the lividity of the lips and extremities of the fingers also continues ; projection of the tongue too continues, which may be also livid and wounded. When these remain, they afford important criteria to assist in forming an opinion. In those cases, also, where the vessels of the neck have not been much compressed, there may be no appearance of congestion externally. In short, the congestion of blood after death depends so much on position after the removal of the cord from the neck, that it can be made to appear and disappear at pleasure. This was demonstrated on the body of the celebrated Burke, who was executed here a few years ago.

Some injury is thought to be produced by the compression of the large nerves by the rope in hanging. It is quite a mistake to expect dislocation or fracture of the vertebræ of the

neck in persons who have been hanged. Neither is there any laceration of the larynx, which has been alleged by some to be the cause of death. In most cases, none of these occur, and they are not necessary to cause death. When any of them does occur, it is by the person having had a great fall, or very unusual violence having been used. These injuries may have been produced after death. They are therefore not to be relied on as proofs of murder.

The rope is generally placed either above or below the thyroid cartilage, seldom upon it. When above it, the root of the tongue is pressed backwards upon the pharynx, closing the epiglottis, and preventing respiration as well as the projection of the tongue. When the rope is placed below the thyroid cartilage, the tongue projects, and the respiration is not at first completely obstructed. The respiration is only partially interrupted, some air gets into the lungs, and the individual might live for some length of time ; but the bloodvessels being compressed together with the impeded or imperfect respiration, death is soon produced by an apoplectic state of the brain.

Death by hanging, then, may be produced by the stoppage of the respiration when this is complete,—by the partial stoppage of the respiration and congested state of the brain,—or by congestive apoplexy when the respiration continues, as in experiments on animals by making an opening into the windpipe after suspension, in which case it requires a much longer time to produce death. In committing suicide, the individual might open the trachea, by cutting his throat ineffectually before suspension.

In the common cases of hanging, the duration of life after suspension is too short to allow much of the apoplectic state to take place. Where death has been occasioned from a short suspension, it is probably owing to a conjunction of the degree of the apoplectic state, along with suffocation, that opening the windpipe and artificial respiration prove abortive in restoring animation.

The external appearances in those who have been hanged, vary according to the manner in which death has been produced.

There is commonly a rope mark, consisting of an indentation, of a colour differing from that of the adjacent parts. If the cuticle has been abraded, the indented line of skin so denuded becomes dry, and of a brown colour. But these appearances are not invariable; the mark of the rope is sometimes not distinct. It has been observed that in many cases there are no peculiar appearances of this kind upon the neck. This probably depends on the length of time the rope has remained around the neck. In several executed criminals, from whose necks the rope was early removed, there was little or no mark. In a case of suicide by hanging, in which the individual hung for many hours, the indentation of the rope was whiter than the rest of the skin, and had a distinct red line both above and below it.

The signs denoting turgescence of the head depend on several circumstances. *First*, On the kind of asphyxia which has taken place, that is, whether suffocation has been partial or complete. If the suffocation has been imperfect, the face is red, in place of black or livid, and froth issues from the mouth. If the asphyxia has been sudden from suffocation, there will be no venous congestion. *Secondly*, It will depend on the position of the rope in the manner which has been already explained. *Thirdly*, On the removal or non-removal of the rope, and the position of the body. If the rope has been removed some time before the inspection, the turgescence of the vessels of the head and face will be greatly lessened and removed, if this has been favoured by the position of the body.

Peculiarities of the rope mark :—When hanging has proved fatal, some mark of the suspending ligature will generally be found. The mark does not in general completely surround the neck. The rope mark may either be of a darker colour than the surrounding integuments, consisting of a reddish or brownish mark upon a white ground, or it may be a whitish mark on a reddish or livid ground. The latter of these may be imitated after death.

In the case of a man who hanged himself on a tree in the Meadows, the rope mark was yellowish-white upon a red ground. The very same existed on the necks of the criminals Gow and Beveridge after their execution. The redness on their necks

was afterwards increased by the injection of a watery solution of nitre into the arteries ; this propelled the blood into the extreme vessels which had been distended, but the white mark of the rope was very little changed. Varying the position of the body would probably have had the same effect : on the neck of M^cCourt, who was also executed, there was very little mark perceptible ; there seemed to be very little blood in his body. Stewart and his wife, who were executed, were blooded some hours after, by which the whole integuments became pale, and no mark was perceptible.

It is very remarkable that a considerable degree of increased redness occurs both above and below the line of the rope mark. These red lines are probably caused by a reaction in consequence of organic life continuing some time longer than animal life.

The rope very rarely produces ecchymosis.

The appearances caused by hanging, to a certain extent, depend on the period after death at which the inspection is made. If the rope is removed immediately after death, the mark is not so deep, though it exists. In a few hours after the removal of the rope, if the cuticle has been abraded, the rope mark may be more distinctly visible by becoming brown.

It is to be kept in remembrance that the rope mark, turgescence of blood about the head, protrusion of the tongue, or biting of it, are not constant in those hanged. The distention and excitement of the organs of generation also, are not constant, nor are they an invariable sign of hanging, as they take place in some diseases, and other forms of violent death.

The peculiar expression of the countenance in those hanged is of some importance, as it relates to indications of struggling when murder has been committed, either by the suspension or previously to it, and exhibits placidity when suicide has been effected in this way. This is of some importance, though it is not much to be relied on.

The state of the lungs after hanging, depends on the person having inspired or expired just at the moment of suspension ; and it also depends on the respiration having been more or less suddenly or completely interrupted ; consequently they sometimes seem as if inflated, and float in water ; they always con-

tain more or less air ; and, as in other cases of asphyxia, they, and the right side of the heart, may be congested with venous blood.

Death may be produced by hanging without the body being completely suspended ; it may be occasioned wilfully or accidentally, but in this country it is most commonly the result of suicide, unless it has been inflicted as a punishment. Death by hanging has often been the result of experiments among boys and others. It happened accidentally in the case of a girl, who having twisted the ropes of a swing, slipt from the seat, and got her head so entangled with the rope that she was hanged. When hanging has been the deed of another person, there must in general be more assassins than one. But the possibility of one person hanging another is shewn by the case tried here in the year 1827, where a woman tied a ligature round the neck of her husband while he was asleep, and then pulled him up.

CASE 114.—Marion Brown or Graham was tried at Edinburgh, 13th March 1827, for having assaulted her husband when asleep, tied a rope round his neck, and partially suspended him by a nail in the roof. He was found by a neighbour lying on the floor, having his head suspended about a foot from the ground. He was in a state of insensibility, his face was swollen, and “ getting black,” his hands hanging quite relaxed by his sides. A surgeon was got and he recovered. When examined in Court, he admitted that he and his wife had been drinking that day, after which he lay down in bed, and awoke in a very uncomfortable state. He did not attempt to strangle himself. Mrs Graham had shewn signs of temporary insanity from drink. She was sentenced to eighteen months’ confinement in Bridewell.

As hanging is very common in cases of suicide, an opinion asserting that murder has been committed in this way, should not be formed but upon very strong grounds.

We now come to the consideration of several very important questions connected with the subject, and,

I. *First, Whether death by hanging is the result of accident, suicide, or murder?*

Whether by accident or suicide, is to be determined, in any particular case, more by other collateral circumstances than by medical particulars. The question of greatest importance therefore is, *Whether death by hanging has been committed by the person himself or by another?* The appearances found may be the result of either. But light will often be cast upon this question by attention to the following particulars.

First, The place and manner in which the body was found hanging. In one very interesting and important foreign case, it was found that the person could not possibly have suspended herself as alleged. If, then, the person could not have reached the place himself where he is found suspended, some other person must have hung him up.

Second, When death by hanging is the result of murder, other marks of violence will most commonly be found on the body. It is to be recollected, however, that an intoxicated or sleeping person may be suspended without making any resistance.

Third, It is of importance to attend to the length of the cord and knot on the neck, as also the distance of the suspensory point, as shewing how far the individual could have suspended himself. Complicated knots, especially if peculiar in their character to the person suspended (such as sailors' knots, the suspended person being a seaman), afford indications of suicide. It is also probable that, in cases of suicide, the rope will appear to have been more systematically prepared, as with a slip knot, which I have seen, than when murder is committed.

Fourth, If the cord is known to have been the property of the deceased, a strong indication of suicide is afforded.

Fifth, If other ligatures are found on the neck, or any other parts of the body, it is presumptive of murder, but not always.

Sixth, The clothes of the deceased being injured or torn, stained, or otherwise marked, also indicates murder.

Seventh, Contusions on the neck, or other proofs of violence upon any part of the body having been inflicted by another person, particularly if they indicate attempts to strangle, are presumptive of murder.

Eighth, The habits and state of mind of the deceased, his profession and worldly prospects, are to be taken into consideration as to the probability of suicide. If he has adopted recluse habits ; if a dejected state of mind has been observed, or if he has been unsuccessful, and disappointed in his profession and worldly prospects, there are strong reasons in favour of suicide.

II. *Secondly*, Another question of great importance is, *Whether a person found suspended, died from this cause, or was only hung up after having been otherwise murdered?*

When, in any particular case, *suicide* is proved, this question is at an end. But if death by murder is probable from the circumstances of the case, it is more likely to have been perpetrated by some other means previous to the suspension of the body, as murder is very rarely committed by hanging.

If, upon examination, ecchymosis can be observed at any part in the rope mark, it must have been formed during life. If there is blueness or lividity of the face above the rope mark, the presumption is that it had been applied during life. From the appearances of the rope mark already described, it will in general easily be determined whether the rope mark that exists had been formed before or after death. If neither signs of congestion of the face and head, ecchymosis, nor rope mark, exist, then there is suspicion of the body having been suspended after death.

By experiments made by Orfila, who hung up many dead bodies, it was found that the face continued pale, the eyes did not become suffused, the tongue did not protrude, the external appearance of the rope mark was the same as in some of those who had died by suspension, but there was no ecchymosis. If the observation is correct, that the florid line on each side of the rope mark is occasioned by reaction, this will not be observed in a body hung up after death.

When the appearances indicating or denoting suspension before death are absent, we cannot always infer that death has not been occasioned by hanging.

In estimating the congestion of the head and face, particular

attention should be paid to the situation of the rope on the neck, because this gives rise to some variation in the appearances, as formerly described. The case of a Negro under circumstances of this description, would be attended with very great difficulty, as lividity of countenance, and the appearances connected with the rope mark, would not be distinguished.

In deciding the question under consideration, much attention is necessary in the investigation of other marks of violence. If any are found, it is necessary to ascertain particularly whether these had been made before or after death. These may sufficiently account for death, and may have obviously preceded the hanging.

Poisoning is said to have been sometimes committed before suspension.

One of the most important kinds of violence to investigate is, whether or not there exist marks of strangling previous to suspension. Ecchymosis on the neck, apart from the ligature or rope mark, is presumptive of strangling, as are also marks of strangling lower down on the neck than the cord. A double mark affords strong suspicion of murder before suspension, though suicide has sometimes been committed by a double ligature, or two turns of it round the neck. If the mark is low down in the neck, strangling is more probable than hanging, for, in the latter, the rope ascends to the upper part.

It is to be recollected, however, that marks of violence on the neck may be either those occasioned by struggling with another person, or the self inflictions of a determined suicide. A case of this kind is mentioned by Beck, in which a young ecclesiastic cut his throat partially, and then hung himself in the vestments of his office, which he had arranged for that purpose.

From the position of the individual when suspended, death by hanging may be out of the question, so that he must have been suspended after death.

D. *Of Drowning.*

Drowning, or submersion in water, forms another mode of death by asphyxia; and it is one also of great importance, be-

cause some difficult and interesting medico-legal questions may arise, as to whether death by drowning has been the result of accident, suicide, or murder.

As drowning generally takes place in large masses of water, I shall premise a few remarks on the physical effects of water in relation to the human body.

1. By the general laws of hydrostatics, a body which is specifically *heavier* than water (that is, heavier than an equal bulk of water) sinks in the water upon immersion, by displacing less than its own weight of the water. Thus a square inch of lead, being heavier than a square inch of water, immediately sinks to the bottom of the water.

On the other hand, a body which is specifically *lighter* than water, floats upon its surface, by displacing more than its own weight of the water. Thus, if a square inch of lead be extended, and formed into a hollow ball containing air only, of a sufficient size to displace more than its own weight of water, it will float.

But when a floating body is depressed, or forced down below the surface of the water, its specific gravity is increased by the pressure or weight of the superincumbent fluid upon it. This pressure increases according to the depth of the body in the water; for, as the depth increases, the height and weight of the superincumbent column of water become greater also. This pressure is so great, that if a strong empty bottle be well corked and sunk to fifty fathoms, it will be raised filled with water without the cork having been disturbed, except by the water being pressed through its pores. From the extent of the surface of the human body, it is computed that the hydrostatic pressure upon it, when immersed, is about 1000 lb. for every foot the body is depressed below the surface of the water.

From these statements it follows, that, if the floating body is depressed to a sufficient depth, its specific gravity will increase till it becomes equal to that of the water. When the body arrives at this point, it will neither ascend nor descend in the water, but will remain stationary. Hence this has been called the point of equipoise or of equilibrium. Now it will be evi-

dent, that if the body is raised in any degree above the point of equilibrium, its specific gravity being lessened by a diminution of pressure upon it, the body immediately rises to the surface and floats. And when, on the contrary, the body is depressed below the point of equilibrium, the increased pressure, by causing an augmentation of specific gravity, makes the body sink with a velocity greater and greater as it descends.

These phenomena are easily demonstrated by experiment, by which it is also seen that the depth of the point of equilibrium from the surface of the water, depends on the relative proportion the specific gravity of the floating body bears to the water; the greater the difference between their specific gravities, the farther from the surface will be the point of equilibrium. Hence, of those bodies having a specific gravity nearly the same with the water, the point of equilibrium will be very near the surface.

2. The application of the above position to the human body, when placed in water, is highly interesting and important, and affords an explanation of some of the phenomena which occur in drowning.

The most of the component parts of the human body are of greater specific gravity than water. But this is more than counterbalanced by the air and other gases contained in the lungs and bowels when they are in their usual state of moderate distention. Thus the body floats with about half of the head above the surface of the water, when the lungs are distended by a full inspiration. But on breathing out a part of the air from the lungs, more of the body becomes immersed, so as to displace a larger quantity of water, in order that it may float. In this alternate rising and sinking of the body by respiration, the mouth and nostrils (particularly in inexperienced swimmers) are apt to be immersed in the water, so as to interrupt the breathing. Hence the necessity for propelling the body upwards to the surface with the hands and feet in swimming, at each period of expiration, in order that the nostrils may be raised above the surface to inspire and distend the chest.*

From what has been said, it is obvious that the specific gra-

* See Lardner's Cyclopædia, v. 17, p. 104, 105.

vity of the human body, when the chest is moderately distended with air, is very nearly the same as that of water. When the chest is fully distended it floats, with about half of the head above water; when collapsed, by letting out the breath, it sinks: so that the point of equilibrium for the human body must be very near to the surface of the water. As all individuals are not of the same weight in proportion to their bulk, some possessing a greater proportion of adipose matter, and chests of greater capacity than others, the specific gravity or power of floating varies in different individuals. The degree to which the chest is distended with air at the time of immersion, and the specific gravity of the water, will also have their corresponding influence in varying the point of equilibrium. Thus sea-water is more buoyant than fresh-water, from its greater specific gravity, by 28 in 1000 parts. The weight of wet clothes upon the body will also have an effect in augmenting its specific gravity.

In whatever position a body floats in a liquid, the same bulk requires to be immersed; and hence the danger to a person floating in water by raising his arm out of it, which will cause a corresponding bulk of his head to sink. Drowning persons are very apt to increase their danger in this way, by involuntarily raising their arms out of the water.

From what has been above stated, when an individual falls into water, if his chest collapses by letting out his breath in falling (more particularly if he falls from a height), he may descend below the point of equipoise, and continue to sink and die without rising again to the surface. This has been several times observed in accidents at sea, even in cases of men known to be expert swimmers. In some cases, where the fall is not great, the individual may raise himself to the surface by the movement of his hands and feet; but when the individual faints at the moment of immersion, or is intoxicated, he will be unable to make any effort of this kind. Individuals, therefore, upon falling into water, may immediately sink and be drowned, without ever rising to the surface.

It is also to be inferred, that when an individual falls into water, he may rise again to the surface and float for a time.

But that, unless he is an expert swimmer, he will not be able to carry on the necessary respiration and distention of the lungs. And even although he should be a good swimmer, the muscular exertion necessary to keep his head above the surface, and carry on respiration, together with the cold, soon causes exhaustion, which preventing farther effort, is followed by submersion and death.

Death by drowning is more frequently the result of accident than either of the other forms of death by asphyxia. Under peculiar circumstances, very little water suffices to cause death. Several instances have happened of individuals having been drowned by falling, when intoxicated, into a ditch, with their faces immersed in a puddle of a very shallow description. A short time ago, a gardener at Dalry, near Edinburgh, stooped his head into a large barrel, from which he wished to withdraw a pail of water. He overbalanced the lower part of his body and fell head foremost into the barrel, where he remained, from being unable to extricate himself, and was found quite dead. In another case of this description, a man who lived in the Canongate, by a fall on the floor, was said to have got his head so fixed in a common iron-pot, that he was suffocated. A short time since, the accidental death of two children was recorded in the newspapers, in consequence of their having fallen into a well, the depth of which was much less than the height of any of their bodies.

Drowning is a very common kind of suicide, from its being a ready, and reputed to be an easy death. It seems also recommended to the suicide by the somewhat romantic appearance it possesses. Murder by drowning is of rare occurrence; for, water is very seldom at hand where this is to be perpetrated, and much violence would be required not only to get the person thrown into the water, but also to get him disentangled from the perpetrator, unless under very peculiar circumstances; such as in cases of infants, persons in a state of insensibility from blows or intoxication, or persons fighting by the side of deep water, or on ship-board.

CASE 115.—James Glen was tried at Glasgow, 10th Novem-

ber 1827, for having murdered his illegitimate child, eighteen months old, by throwing it into the canal near Glasgow. The child had been delivered to the pannel in good health two days before it was found dead in the canal. He could not give a proper or consistent account of the manner in which he had disposed of the child. Upon inspection, frothy mucus issued from the mouth,—a furrow existed on the fore part of the neck, with a hardened ridge both above and below, such as would have been produced by strangulation. In the cavities of the body no unusual appearance was observed. Glen was convicted and executed.

In this case the medical opinion given was, that death had been occasioned either by drowning or strangling, because the appearances were such as might have been produced by either.

CASE 116.—Thomas and Peter Galloway were tried at Edinburgh, June 27. 1836, for the murder of Robert Campbell, aged 16, a seaman on board their sloop, by having struck him one or more blows on the head, and knocked or thrown him overboard into the Forth near Alloa, whereby he was drowned. By the evidence adduced, the death of Campbell took place on the 22d February 1836, when several persons saw him struggling for life in the water, just before he was drowned; but his body was not found till the 21st of March, when it was inspected by Dr Macgowan, Mr Boyd, and Mr Drummond, surgeons. Upon inspection, they found the usual marks of death by drowning, consisting of a swollen appearance of the face, protrusion of the eyes, prominence of the jugular veins, general tumefaction of the chest and belly from beginning putridity, cuticle beginning to separate. The sinuses and veins within the cranium were filled with black blood; the lungs occupied more space than usual, and contained frothy mucus; the right side of the heart was much distended with dark coloured blood, the left side was empty. They also found a discolored spot on the right temple, and another on the forehead above the nose. On dissection of the scalp, there were discolored spots under those above mentioned, and other discolored spots simi-

lar to these were observed where there had been no external discoloration ; so that they could not say whether these marks had been occasioned previous to or after death. The jury found a verdict of “ Not proven.”

As the injuries on Campbell's head were slight, together with the other circumstances, it is clear that he died by drowning ; but whether he had fallen accidentally or been thrown by another into the water, could not be established ; for the marks of blows on the head might have occurred by an accidental fall, as well as by violence from another person. The circumstances, however, were very suspicious against the pannels, as they had also marks on them of having been fighting.

The important point for our consideration, therefore, is not so much murder by drowning, as the question, whether a body found in water had been accidentally drowned, or murdered in some other way, before having been cast into the water. But before proceeding to this important and difficult question, I shall describe the manner in which death takes place by drowning, and then detail the appearances and signs of it as they present themselves in the dead body.

1. *Of the Manner in which Death takes place by Drowning.*
—The old theory of drowning was, that the water got into the interior of the body and overpowered the vital organs. This was proved to be absurd in the seventeenth century, towards the end of which, the extinction of life was found to be owing to the exclusion of air from the lungs. More lately it has been established that death takes place from *asphyxia*. Congestive apoplexy accompanies the asphyxia in some cases, in others it is rather stupor that attends it.

The statements of authors upon this subject, and the appearances after death, are at variance with each other, and they cannot be reconciled, unless it is kept in remembrance that death by drowning may take place under different circumstances. Some individuals, upon falling into the water, rise frequently to the surface, cry and scream aloud, and gradually die, by the muscles of respiration becoming exhausted from cold

and exertion, and hence the asphyxia, by being unable to get a sufficient supply of atmospheric air. Others sink immediately to the bottom upon immersion, and die very soon and quietly, without ever rising to the surface. In both cases death takes place by asphyxia. In the last case the individual almost immediately becomes insensible from faintness, and this state has been termed syncope asphyxia. When the individual is in this state of syncope, the circulation being nearly at a stand, he could be recovered after a longer immersion than otherwise ; for there is not that demand for respiration that there is when the circulation goes on actively. Foderé mentions the case of a young woman who recovered, who had been taken out of the water fifteen minutes after immersion.

When a bold, stout, and athletic person falls into the water, he will rise frequently, and make much effort to escape ; a timorous person, on the other hand, becomes insensible and faints by the fright, stupor comes on, he sinks calmly, and dies.

The state of stupor, however, which accompanies submersion in water, may arise from different causes besides that which has been just described. It may be produced by a concussion of the brain, when the head strikes any object forcibly, or against the bottom of the water, in falling ; it may even arise by striking against the surface of the water, if the fall is from a considerable height. When stupor happens from any of these causes, the individual sinks immediately to the bottom of the water, from which he never rises. Some of those who have been recovered from this state, describe the feelings which they experienced at the bottom of the water as by no means unpleasant.

A person may also fall into the water in a state of stupor from intoxication ; or the stupor may have been caused by cold, fear, or the like. He may likewise have fallen in a state of apoplexy, or in an epileptic fit. The state of the individual is also modified by the cold applied to the surface of the body.

2. Of the Appearances after Death in drowned persons.—
The external appearance of individuals who have died by

drowning, varies according to the sudden or gradual manner in which they have died. In those who have died quickly without rising to the surface, the countenance is pale, and presents an appearance remarkable for calmness and placidity, of which I have seen several remarkable examples.

CASE 117.—In 1831, I examined the body of a woman drowned at Coltbridge, near Edinburgh. Several persons on the spot who abstracted her from the water, said that she could not have been immersed for more than two or three minutes; she had never risen to the surface, and was quite dead when taken out. Her face was pale and collapsed, her tongue was not projecting from the mouth, the eyes were half open.

CASE 118.—In another case, a lad of about 15 years of age, was drowned at Duddingston, near Edinburgh, by falling into the water under the ice. This of course prevented his getting to the surface, and some minutes elapsed before he was got out, when he was quite dead. His face was pale and collapsed, and was remarkable for placidity of expression. I was unable to obtain a dissection of any of these cases.

CASES 119, 120.—On 24th January 1832, I inspected the bodies of two individuals, each about 30 years of age, a brother and sister, who had committed suicide by drowning at the Canal Basin, in consequence of adversity in their circumstances.

They had been seen to plunge into the water, and were not above two minutes immersed in it before they were got out, but were then both quite dead. Their bodies were immediately carried to the Humane Society's Institution, where the means of resuscitation had been employed for about two hours without any benefit. But this had not been commenced till about half an hour after they had been taken from the water.

Upon inspection there was nothing remarkable in their external appearance. Their countenances were pale, collapsed, and placid. The lungs, hearts, and brains, presented a healthy appearance, and were not particularly gorged with blood. The blood was fluid, and of a dark colour.

The appearances here as to the state of the heart and lungs

may have been in some degree modified by the artificial respiration carried on in attempting to restore animation.

But in those who have risen to the surface and died gradually, which is by far the most common case, the countenance, and sometimes the whole body, presents an appearance of greater lividity than in the other kinds of death by asphyxia. The eyes are generally open and prominent, and their vessels are highly injected with blood. The tongue projects from the mouth, the face is swollen, and the expression of the countenance indicates the persons having died in a violent struggle.

When a person dies quickly by drowning, the lungs present nothing remarkable in their appearance. But if death has taken place slowly, the lungs are gorged with blood, and it flows out from them freely upon incision. The right side of the heart is usually distended with blood. The vessels of the brain also present unusual turgescence. This turgid state of the vessels of the brain can, only in some cases, be attributed to congestive apoplexy at the moment of immersion, for it is only occasionally that there are no other signs of slow asphyxia present.

On dissection, very little water is found in the windpipe or lungs. Some water is occasionally found. It is by no means constant. It does not always gain admission, and may therefore be wanting. Sometimes it exists in so small a quantity, that it exists only in the form of watery froth, or of some water gorging less or more the substance of the lungs. I have never found any to exist in the cases which I have dissected, so completely does it seem to be excluded by nature. No very accurate observations have yet been made as to the quantity of water found in the lungs of drowned persons.

The presence of water is to be accounted for by the manner in which the person dies. When he dies slowly, and previously rises often to the surface, and cries much, some water is inhaled along with the air, and some is also swallowed into the stomach.

The epiglottis is generally found raised in animals who have died slowly by drowning. This circumstance is of course produced by the projection of the tongue. The experience of

Foderé is, that he has never seen a person recovered after immersion whose epiglottis was elevated.

The same inconstancy has been observed as to the presence of water in the stomachs of persons who have been drowned as in the lungs. It has often been found present, but is frequently wanting. Its presence is to be accounted for by the slow and gradual manner in which the individual has died. Upon rising to the surface of the water during the efforts to breathe, some water obtains admission into the mouth, and is swallowed. Water may be found in the stomach when it is not found in the lungs. When water is found in the stomach, it should be compared with the water in which the body was immersed. If the water of immersion contained any thing peculiar, and that found in the stomach is found to be the same, a strong proof will be afforded of the individual having been immersed alive.

Swelling of the belly from water having been swallowed, has also been mentioned as a mark of drowning. But swelling of the belly is more commonly occasioned by the evolution of gases in the stomach and bowels than of water. This tympanitic state of the belly uniformly takes place by the process of putrefaction, and is the cause of dead bodies rising to the surface some time after they have been drowned. Owing to this cause, the dead bodies of drowned persons which have eluded the most diligent search, have afterwards made their appearance. When homicide is suspected in such cases, dissection is generally too late to prove satisfactory, from the advanced stage of putrefaction.

CASE 121.—On the 17th of April 1831, I was called upon to inspect the body of a man, apparently a labourer, about 25 years of age. The body had been found on the preceding day in a pool of water, in Craighleith Quarry. The decomposition of the body had made considerable progress, as the skin of the head was of a dark red colour, and emphysematous, and the belly much distended with gas. Altogether, the body had the appearance of having lain in the water for two or three weeks. In confirmation of this, a hat, which had most probably been

that of the deceased, had been found in the same place three weeks previously.

The cuticle of the hands and feet had a very blanched appearance from the maceration, and it easily peeled off. The extremity of the tongue projected from between the teeth, eyelids half open, and the countenance presented an anxious expression.

The skin of the head and face was swollen and tumid, partly from extravasation of bloody serous fluid, and partly from the gases of decomposition contained in the cellular tissue, but chiefly the former.

Red coloured fluid (like bloody serum) was issuing from the nose, mouth, and ears.

No mark of injury on any part of the body. Brain natural; lungs of dark blue colour, quite natural to the touch, and when cut into they contained some congested blood, but this was not to a great extent; no water could be pressed out from the lungs, they floated in water.

The cavities of the thorax contained a considerable quantity of bloody serous fluid.

The stomach and intestinal canal were much distended with foetid gases. The viscera otherwise natural.

It is highly probable that this man, upon falling into the water, had struggled, and died gradually and slowly; for the appearances after death were those of gradual suffocation. The body had then sank down, at all events considerably below the surface of the water, otherwise the body would have been observed by the men who are daily working in the quarry, especially as their attention was directed to this by the hat having been found three weeks previously.

After the lapse of several weeks as decomposition proceeded, gases were evolved from the internal parts. These, by inflating different parts of the body, rendered its specific gravity less than that of water, and consequently it floated and rose to the surface.

Water is said to exist in the cavities of the pleura of drowned

persons. In several instances I have certainly found this to be the case. But it is probable that this is an effusion of serum, occurring either at the period of death, or subsequently forced into the thorax by the pressure of the water upon the surface of the body.

In drowned persons the joints have been said to become sooner rigid after death than in others. This probably arises from cold. In some cases the rigidity is slight, and may have passed over without observation.

The blood of drowned persons is generally found to be fluid, as in other cases of asphyxia.

In drowned persons scratches have generally been found on the hands, fingers, and nails, in consequence of their grappling or coming in contact with foreign bodies in the water, or by the sides of it. Leaves of plants and the like have also been found under the nails.

From what has been said regarding the signs of death by drowning, which, by happening in two distinct ways, produces two distinct kinds of appearances, it is obvious that in the one, where death takes place slowly, the head, face, and neck are livid and gorged with blood; the tongue projects from the mouth; scratches appear on the hands, and the epiglottis is open. On the other hand, when death takes place quickly, there are none of these appearances present. So, when the signs of drowning are absent, we are never warranted in saying that death may not have happened from this cause, unless where there are indications to the contrary present.

We come now to the consideration of several important questions connected with this subject.

I. *First*, It is often a question of great moment to determine, whether death by drowning has been the act of the person drowned or that of another. This, however, is almost entirely to be determined by other circumstances, and not by those connected with the appearances in the dead body. Foderé has said that when suicide has happened by drowning, the individual generally swallows a large quantity of water with a view

to promote his death ; but this may happen in cases of accidental drowning or murder, in the way I have already mentioned.

In deciding this question, it is of greater importance to attend to the place where the body is found—the marks of other injuries upon the body—and the habits and character of the deceased, than to other circumstances.

1. Regarding the first of these, it is to be remarked that a suicide generally selects a remote and sequestered situation to accomplish his object. Whereas a murder in this way is generally committed at a place much frequented through the day but not so at night.

It is often of great importance to observe whether or not any marks of footsteps exist on the banks or side of the water, as murder has in this way been discovered. Some years ago (in 1817) a very remarkable case of this kind happened in England, in which a young man was convicted of rape and murder by having drowned his victim. The foot-prints made by his running from the place after the deed was committed, formed a very important part of the evidence against him.

If the drowned person seems to have fallen in by the giving way of the bank of the water, accidental drowning is probable. If there is no mark on the bank, and, more especially, if some of the deceased's clothes are found on the bank, suicide is probable, unless the individual had gone into the water for the purpose of bathing.

2. With regard to the second particular,—if any marks of bruises or wounds are found on the body, the presumption of murder is very strong, particularly if any weapons are found at the part or in the water. This presumption is confirmed by foot-marks on the adjoining ground, indicating that persons have been engaged in struggling. (See Case 110, p. 129.)

Marks of injury, however, may have been inflicted by the person himself in attempting to commit suicide. They may also have happened by the person having fallen upon stones or other hard bodies, even in bathing—on the bank before getting into water, or by striking upon the bottom, or even upon the surface of the water ; for a person by falling or leaping from

a height will be killed by the concussion of the fall upon the water, unless he is a very expert diver.

CASES 122, 123.—A man wagered that he would leap into the Thames from three of the bridges of London. He leaped steadily from two of them. But in performing his feat from the third, he was observed to waver in his descent, and to extend his arms. He was killed by the fall, and both shoulders were found dislocated. A stout young man in diving feet foremost from the top part of the Chain Pier at Newhaven, a height of about sixteen feet, received such a severe blow upon the testicles, and was so stunned, that, being scarcely able to get out of the water, he was very nearly drowned.

Wounds received previously may, by immersion, acquire the appearance and characters of wounds inflicted after death.

The person found may have grasped on some particular part of the bank, or shreds of the clothes of another person in his hand, which may lead to important inferences. The sand, mud, or gravel about the clothes of the deceased, may also indicate facts of importance.

The extremities of a drowned person may be found tied together, but this may happen in a case of suicide, as well as it may be the act of another person. An expert swimmer, in committing suicide, tied both his arms and legs together. He had been in a state of mental derangement for two years previously. The cord by which he had tied himself was recognised as one which he had used for raising himself up in bed. See Beck, 304. In such cases the ligature should be carefully examined. If the knot has been elaborately made, the inference is, that the case is not one of murder. If there is a mark of a ligature upon the body without the ligature remaining, it is a circumstance very suspicious of murder. When a ligature is found upon the hands, it will be seen whether or not it is so tied as the person could have accomplished it himself.

The hands being found clasped together, is a mark of suicide.

3. Regarding the other circumstances, as to the habits and

character of the deceased, particular attention is necessary, as they are often of great importance.

If the individual has been subject to mental derangement or epilepsy, or if he has been subjected to misfortune; and, more especially, if he seems to have been drowned suddenly, without rising to the surface of the water, suicide is most probable.

If the deceased was a good swimmer, and, more particularly, if marks upon his limbs indicate their having been tied, there is a strong probability in favour of murder. This may in general be traced and confirmed by attention to collateral circumstances.

II. I now proceed to the consideration of a very important and difficult question, which frequently falls to be decided by the medical jurist, viz. Whether the deceased died from drowning, or was cast into the water after having been otherwise murdered?

The first thing to be attended to in such cases, is to ascertain whether or not there is evidence of death by drowning. In deciding this, it is necessary to recollect, that the peculiar characters of drowning, so often found in the dead body, are not constant; and that in fact a person may have been drowned without his body presenting any unusual appearance after death. It is also necessary, when the appearances characteristic of drowning are present, carefully to inquire whether or not they could have arisen from other causes.

Lividity of the skin of the head and neck, is only a presumptive mark of drowning, for it may arise from various other causes.

Water found in the air-passages is an indication highly presumptive of death by drowning, as it could only get admission there before death. There may be a possibility of its admission after death, but it could then get in only in very small quantity.

Froth in the air-passages occurs in several diseases, and in other forms of asphyxia; but when it is conjoined with water, it is an additional criterion to other signs of drowning.

The presence of water in the stomach, is also a circumstance which has given rise to a difference of opinion. The same remark may be made of this, which has been made respecting water in the air-passages. When it exists in large quantity, as to the amount of several pounds, there can be no doubt as to its having been swallowed before death. But if in less quantity, the nature of the case must be corroborated by the general evidence. The water being the same with that from which the body was taken—the hands being scratched, and holding in them leaves or other bodies from the bottom or sides of the water, are also circumstances of considerable importance, as denoting that the individual had been immersed alive. Each of these circumstances is equivocal individually, but when conjoined they afford very strong evidence, as they could not have been otherwise imitated.

CASE 124.—On the 21st March 1833, I inspected, at East Calder, the body of J. B., a remarkably big stout man about 35.

This individual had been amissing from Tuesday the 12th of March, when he had attended a fair at Linlithgow, which was near his residence, had got drunk, and then fought with several men.

No tidings could be obtained of him till the 17th, when his hat was found in a deep pool of water, which had formerly been a quarry, at a short distance to the east of East Calder. This water pool is close to the road side, and there were several gates leading to it from the footpath, which were seldom closed. On the side of the quarry which is next the road, there is a perpendicular rock from eighteen to twenty feet in height between the top of the bank and the surface of the water. This precipice has no fence at its summit to prevent accidents.

Immediately after the hat was found, the friends of the deceased commenced dragging the pool for his body, which they succeeded in obtaining from the bottom, after three days' search. The body had, therefore, probably lain in the water from the 12th till the 20th, a period of eight days.

In dragging the pool, a boat was used ; and from the tackle employed, the searchers conceived that they found the body at the bottom of the pool, where it was from twenty-eight to thirty feet in depth.

When the body was found, marks of violence were observed upon the head, which, with other circumstances, gave rise to a suspicion of his having been murdered and afterwards thrown into the water.

Inspection.—Externally, the skin of head and face was somewhat redder than natural. Some tumefaction above the right eye, accompanied with ecchymosis to a small extent ; eye-lids closed. Two small wounds in the skin under the right eye. No other scratch or mark of injury could be observed upon the body ; but the cuticle of the hands and feet had the usual blanched appearance, arising from maceration in water for several days.

On opening the cavities, the veins of the head were filled with fluid dark coloured blood, which flowed freely out on incision. The brain was otherwise natural, except some serum tinged with blood contained within its ventricles.

The lungs were of natural colour, very emphysematous and crepitating, and contained much less blood than usual. About eight pounds of bloody fluid was taken out from the cavities of the pleura. There were several ounces of the same in the pericardium. This fluid, when examined more particularly, seemed to be almost pure blood. It was 1011 of specific gravity to water as 1000 ; and was almost completely coagulable by heat. The trachea contained no frothy fluid ; and the tongue was not projecting from the mouth.

The right side of the heart was moderately filled with grumous clots of blood. These clots seemed to be of a darker colour, and more dense than usual ; they had the appearance of blood after most of its watery part has been expressed from it.

The contents of the abdomen were quite natural. Some water in the stomach mixed with food.

In this case drowning was the cause of death. It was afterwards ascertained that, at a late hour in the evening of the 12th, the individual had been seen on the road near to the quarry.

alone, and in a state of intoxication; when in all probability he had wandered off the road towards the quarry, fallen over the precipice above described into the water, and sunk immediately to the bottom.

This case illustrates several important particulars in the phenomena of drowning.

From the appearances in the body there were no injuries to account for death, and from the depth at which he was found, it is highly probable that he had fallen from the height of about twenty feet into the water,—descended by the impulse to a considerable depth below the point of equipoise, never rose again, but continued to sink, and of course soon died.

The effusion of blood which had taken place into the cavities of the brain, pleuræ and pericardium, must have taken place after death, in consequence of the pressure of water above the body forcing the blood through the extreme vessels into parts of the body where there was least resistance, as the same degree of pressure was prevented by the cranium and ribs. Had there been a wound in the chest the case would have been puzzling, or it might have been supposed that a bloodvessel had burst internally and caused death. How are such cases to be distinguished? By there being effusions of blood not in one, but in *each* of the shut cavities protected from the hydrostatic pressure, as the ventricles of the brain and cavities of the chest.

CASE 125.—On 21st January 1833, I inspected the body of J. R. a stout man, about 35 years of age, who had been employed as an engine-man in the Royal William steam-packet.

The body of this man had been found at Wardie near Newhaven on the 19th, lying within sea-water mark, and from thence was conveyed to the West Kirk Charity Work-house.

The clothes upon the body were quite wet, and contained in several parts a quantity of small blackish gravel, which had been washed into them by the sea-water. This gravel was similar to that which covers many parts of the shore at Wardie.

The cuticle on hands and feet was blanched and shrivelled. There were some scratches on the back of the hands.

Viewed externally, the face was altogether swollen, and of a reddish colour, not livid. The eyelids, nose, and upper lip, were particularly tumefied. When the eyelids and neighbouring parts were cut into, the cellular tissue of them was filled with coagulated blood. The eyelids were completely closed. There was blood under the conjunctiva of the eyes, and the extravasation of blood extended to the temples and forehead. The vessels of the conjunctiva were much distended with red blood. On the upper eyelid, and situated towards the temporal angle of each eye, there was a small superficial wound ; both of these wounds could not therefore have been inflicted at once by a fall upon a flat surface. There was a small effusion of clotted blood on the convolutions of the brain which were situated on the transverse orbital plate of the right eye. There was also the mark of a severe contusion upon the nose, but no bones were fractured. The face looked altogether like that of a man severely contused in fighting.

The brain was not unusually distended with blood. No fracture of the skull at any part.

The lungs were healthy and soft ; but they seemed to be of a more livid colour than natural, and their vessels were filled with venous blood. The lungs were distended with air. The trachea contained frothy mucus, but no water.

The heart was almost empty ; the right side was particularly empty and flaccid. It contained no large coagula or fibrin, but some semifluid blood.

Both cavities of the chest contained a considerable quantity of watery fluid.

The viscera of the abdomen were natural. The stomach contained about six ounces of watery fluid, which had no saline taste.

The bloodvessels of the bowels were more full and distended than usual, which gave these viscera a livid appearance.

To form a decided and correct opinion upon this case was obviously attended with much difficulty. There were marks of violence upon the head sufficient to account for his death by concussion of the brain. The appearance of his face, the state of the lungs, and other parts, likewise afforded indications of

death by drowning, and that his body had been immersed in the water for several days.

Taking all the circumstances of the case into consideration, I reported to the sheriff of the county that there existed marks of violence, inflicted before death, on the head, sufficient to account for his death, though not of a nature to have necessarily proved immediately fatal; but from there being also several of the signs of suffocation present, such as are observed in drowned persons, that he might have been immersed in the water before death.

I also reported that the above-mentioned injuries seemed much more probably to have been inflicted by another person than by accident. That they might have been occasioned either by the fist or by a bludgeon, but most probably by the former, as no bones were broken.

In the investigation of this case afterwards made, the deceased was ascertained to have fought with a man in Leith, two or three days previous to his having been found dead on the shore. It was ascertained that he had been afterwards drinking at a public-house. After this it is supposed that, in attempting to go on board of his ship, which was lying in Leith Harbour, he had fallen into the water and been drowned. If this is the manner in which he came by his death, his body must have been washed out by the ebbing tide, during the night, from the harbour, and, with the flowing of a subsequent tide, carried up to the place where the body was found. It is also obvious, that, the appearances found on dissection, completely tend to confirm the above view given as to the manner of his death.

If none of the intrinsic appearances of drowning are present, and more particularly if the blood is found coagulated in the heart, we may conclude that death has not been occasioned by drowning. From other marks of violence found upon the body, we may get important evidence as to the nature of the case. But in order to prove that these injuries were really the cause of death, it is necessary to shew that they could not have happened after death; and, secondly, That they could not have

happened by the body striking the side or bottom of the pool in falling into it. Ecchymosis at any part, and effusion of blood upon the clothes of the deceased, when they exist, must have happened before death, and must have required some interval for taking place. The injuries present may also have been such as to have occasioned instant death, and so prevented the person from stirring from the spot.

Marks of injury on the body, however, are not always to be considered as unequivocal evidence of their being the work of another person ; for suicides have attempted their lives by other means, in some cases, before leaping into the water.

E. Of Asphyxia by compression or wounds of the Thorax or Lungs.

Besides the modes already described, there are others in which asphyxia may occur, by causing such a compression of the thorax or of the lungs as to prevent respiration.

1. The thorax may be compressed, respiration prevented, and death thereby produced, by forcible pressure made upon it, as in the following cases.

CASE 126.—Enos or Innes Kelly was tried at Perth, September 1833, for the murder of his wife by blows, and by the forcible compression of her chest to the ground with his knees.

On dissection, Drs Webster, Crichton, and Mackellar found upon the body marks of contusions upon the head, arms, and legs. The face, neck, shoulders, and breast were livid, but particularly the face. There were also several abrasions of the cuticle of the nose, and two small wounds on the inside of the lips. The lungs were healthy, but there was bloody mucus in the trachea and bronchial tubes. The heart was natural. There was blood effused at the base of the brain, and some bloody serum in its ventricles.

The opinion given by these gentlemen in their report was, in general terms, that death had taken place “by violence.”

At the trial, however, the medical witnesses gave as their opinion that Mrs Kelly had died “by suffocation ;” but as this was not specified in the indictment, the pannel was acquitted.

The compression of the chest with the knees, however, which was specified in the indictment, if its effects had been understood by the legal authorities, to have been the same as compression either of the nose and mouth or windpipe, might have been deemed sufficient. Probably in this case, both modes of compression had been employed, but either of them would have proved fatal. The injury of the brain, too, might have proved fatal by coma, but not so immediately as the suffocation.

CASE 127.—In 1834, a gentleman in returning to Edinburgh, after having dined with a friend a few miles in the country, went off the road and got to a small rivulet, on the opposite side of which there was a wall about three or four feet in height. After fording the water, he had attempted to climb the wall to get upon the road which was on the other side of it. But in doing this, he had laid hold of a large stone (weighing about 2 cwt.), which, being loose, gave way, so that he fell backwards into the brook, and the stone above him. In the morning he was found lying on his back in the water, with the large stone upon his chest, which had prevented him, by its weight, from moving, and had caused suffocation by the compression of his chest. His head was not covered by the water, which was only four or five inches in depth.

Infants and children who have died in consequence of having been “overlaid,” are likewise instances of death by asphyxia from compression of the chest. These will be more particularly noticed under the head of Infanticide.

2. The lungs may be compressed within the cavity of the chest by the presence of air, blood, or other fluid in one or both of the pleural cavities; or by penetrating wounds of the thorax allowing the free admission of air into it, and consequently the operation of the atmospheric pressure upon the lungs, which occasions their collapse and the death of the individual. Wounds of the lungs also, by broken ribs, or other means, which produce general emphysema of the lungs, also cause death by suffocation.

Cases of pneumo-thorax from wounded lungs, in consequence of fractured ribs, or the decomposition of blood or other fluid effused into the thorax, afford examples of the first of these. When only one side of the chest is affected from broken ribs, the patient may recover; but when both sides are affected, death soon follows.

When there is a penetrating wound upon one side of the chest admitting atmospheric air, death may take place, partly from the collapse of the lungs of the wounded side, and partly from other causes, such as accumulation of blood, inflammation or inflammatory effusion into the pleural cavity, as in the following cases.

CASE 128.—Mary Mackinnon was tried and convicted at Edinburgh, March 1823, for the murder of William Howat, by stabbing him in the chest with a knife. Mrs M. was mistress of a brothel on the South Bridge. The deceased, along with some other young men, having gone there on the night of the 8th February, got into a quarrel with the women of the house. When Mrs M. heard this she came among the parties from a room below; and being informed that the women had suffered great violence from the young men, she in a fit of ungovernable passion, lifted a table-knife and stabbed Howat in the breast. He was taken to the Royal Infirmary, where he was under the care of Mr Newbigging, and died on the 20th, having lived twelve days after receiving the wound.

On inspection, there was a wound three-fourths of an inch in length, situated about an inch from the left side of the sternum, and passing through the cartilage of the second rib. This wound entered the chest, and had penetrated the lungs of the same side. About four lbs. of blood were found in this side of the chest, and the lungs collapsed. The pleura presented evident marks of inflammation, which was greatest in the vicinity of the wound. An abscess extended from the mediastinum upwards, along the fore part of the neck, on each side of the trachea. The right side of the chest and other cavities of the body, with their contained viscera, were all in a healthy state.

The case of Mrs Gow, already detailed at page 101, affords

an example very similar to that just described. In each of these cases, both air and blood existed in the cavity of the chest, which caused collapse of the lungs, extreme urgency of breathing, exhaustion and death.

When both sides of the chest are opened by penetrating wounds, which I have several times seen in animals, death takes place almost immediately by collapse of the lungs and inability to respire.

Penetrating wounds of the chest may give rise to inflammation of the pleura, and terminate by inflammatory effusion or empyema, after the lapse of a considerable period, as in the following case, for which I am indebted to Dr J. G. Stuart.

CASE 129.—A. B. a Sepoy, received a bayonet wound in the back, which broke two of his ribs, and caused inflammation and empyema. The matter issued from the wound of the chest on coughing. The discharge was free and profuse; hectic fever and diarrhœa came on, and he died exhausted about six months after having received the wound. On inspection, the lungs on the affected side were much condensed and contracted.

F. Asphyxia from Injuries of, and Foreign bodies in, the Larynx and Trachea.

Asphyxia sometimes occurs from the passage of air to and from the lungs being interrupted by the presence of foreign bodies in the larynx, trachea, or bronchial tubes. In such cases, the intrusion of the foreign body is in general accidental. It is therefore of great importance to ascertain the existence of such a cause of death, in order that homicide may not be attributed to other, and perhaps slight, injuries which may have been inflicted, either previously or at the time of the foreign body getting into the windpipe.

In children accidents of this kind are very apt to occur; and, in such cases, groundless suspicions of homicide may be entertained, as in the following case:—

CASE 130.—A child was thrown down by a jaunting-car while at play in the street; and, from the symptoms, it was

supposed that the wheel of the carriage had passed over her chest. After two days suffering, from difficulty of breathing, she died during a paroxysm of coughing on the morning of the third day. The friends of the child conceived that death had taken place from injury done to the chest. But, on inspection, a piece of almond shell was found in the larynx, entangled and impacted in the rima glottidis, so as to obstruct respiration. The piece of shell had been in the mouth of the child when she was thrown down, and had accidentally passed into the trachea in the confusion of the moment, without her knowledge.*

Wounds laying open the larynx and trachea are not necessarily fatal; but they may be so, though no other important part is injured, by asphyxia from hæmorrhage filling up the passage, as in a case mentioned by Orfila, where death took place in fifteen minutes; or, in cases of the complete division of the trachea, by the retraction of the lower orifice impeding respiration. When the wound is situated between the hyoid bone and thyroid cartilage, fluids, &c. which are swallowed are apt to fall into the larynx and cause suffocation. Wounds of the larynx, particularly lacerated wounds, may also prove fatal by violent inflammation of the parts.

Wounds of the larynx or trachea are rendered much more dangerous when the pharynx or œsophagus has also been wounded, in consequence of matters, either attempted to be swallowed or that may be ejected from the stomach getting into the trachea. But, even injuries of this kind are not necessarily fatal, as is shewn by the case detailed by Dr J. Gairdner in the *Edinburgh Medical and Surgical Journal*, vol. xvi.

Incisions of the throat are often inflicted with a view to commit suicide. By these the larynx or trachea are not unfrequently opened, yet they do not always prove fatal. When death does take place, it is in general from injury of some of the large bloodvessels or nerves which lie contiguous to the windpipe, and which are also wounded in the attempt. See the preceding chapters.

* See Porter on the Larynx.

G. Asphyxia from Excessive Intoxication, and the Inhalation of Mephitic Gases.

Before concluding the subject of homicide by the different species of asphyxia, it will be proper for me to describe and illustrate that form of it which takes place from excessive intoxication. This is necessary, because asphyxia from intoxication is perhaps the most common form of asphyxia which comes under the notice of the medical jurist; and because it is very often accompanied with external marks of violence upon the body, affording grounds for suspicion of murder having been committed.

Asphyxia from intoxication and the inhalation of mephitic gases, might have been referred more properly to death by poisoning; but their frequent occurrence and connexion with the subject of asphyxia, of which we have been treating, will be a sufficient apology for my having introduced them here.

Excessive intoxication induces asphyxia by the state of insensibility which takes place. This is well seen in cases of poisoning by opium, or ardent spirits. When the patient becomes insensible, the breathing becomes remarkably slow, there being only two or three respirations in a minute; the pulse also becomes less frequent than natural; the surface of the body and the extremities become cold, and a state of complete collapse supervenes. From this state, the patient may recover if the dose has not been very great, and when proper treatment is employed. But if the patient is without the necessary aid, and more especially when he is exposed to cold, death soon takes place, but in a gradual manner, by coma. In some individuals an apoplectic state is induced, in which the patient lives a few hours and then dies.

CASE 131.—In August 1830, I inspected the body of Alexander Kennedy, a stout healthy looking man about fifty years of age, at the Police-office. He had been found by the police lying in one of the closes of the Grassmarket quite dead, about one o'clock on Sunday morning. When found the body was stiff and cold. He had been a barber and itinerant musician by profession, and of very drunken habits. On Saturday even-

ing about eight o'clock he had been seen drinking in a low public house; and it was suspected that he had either died there and his body been laid out in the close, or had been turned out to the close in a state of intoxication, and there lay till he died.

There was no mark of injury upon any part of the body. The brain appeared to be quite healthy; its vessels were much loaded with blood, and there was some limpid fluid in the ventricles. In the chest, some old adhesions were found, between the pleura of the lungs and that of the thoracic cavity. The viscera of the chest were otherwise quite in a healthy state. The contents of the abdomen were of healthy appearance. The omentum and mesentery much loaded with fat. The stomach contained about two ounces of viscid semitransparent mucus. The mucous coat of the stomach seemed thickened, softer, and more vascular than natural. No smell of spirits could be detected.

There was no other way of accounting for this man's death, but that it had taken place by excessive intoxication. The want of spirits in the stomach was no proof to the contrary; as this circumstance only proves that, if spirits had been taken into the stomach shortly before death, it had been absorbed, without which the system could not have been affected.

CASE 132.—In January 1831, I inspected the body of — Chisholm, a coachman of stout appearance, about sixty years of age, who had died suddenly and under suspicious circumstances. His character had become degraded from drunkenness, and he lived among people of intemperate habits. They had all been in a state of intoxication on the evening on which he died, and the woman with whom he lodged had set her bed on fire, by which she was so much burnt, that she was taken to the Royal Infirmary.

Chisholm had been seen before his death by two medical gentlemen, who found him in a state of apoplexy. All the cavities were opened, and the only morbid appearances were, hypertrophy with dilatation of the left ventricle of the heart; several osseous depositions on the valve of the aorta, but not so large or so situated as to impede their functions; and several

bony points on the dura mater. No smell of spirits in the stomach, which was completely empty. There was no mark of injury on any part of the body.

In this case death had evidently been caused by insensibility and coma from excessive intoxication. The symptoms before death could not have arisen from the chronic diseases observed in the body.

CASE 133.—In January 1833, I inspected the body of T. Liddle, a notorious drunkard, at the Police-office. In a fit of drunkenness he got out at the window of his house in the College Wynd, in the middle of a very cold night, and without any other covering upon him except his shirt. When found he was carried by the police to the office in the High Street, the door of his house having been found locked inside; but he died soon after he arrived there. The veins and sinuses of the brain were much distended with dark fluid blood, as also the right side of the heart. The left side contained very little blood, but it was of the same dark colour. The liver was soft, and of a lighter colour than natural; and there was some serous effusion between the membranes of the brain, these being such chronic diseases as are commonly seen in the bodies of habitual drunkards. There was no smell of spirits in the stomach.

This man had evidently died from asphyxia caused by the cold and excessive intoxication. Some whisky was issuing from the mouth of this individual at the time of the inspection; but this had evidently been poured into it just before death, with a view to revive him, as there was none in the stomach. I mention this to shew that whisky may be found issuing from the mouth of a body, or it may emit the odour of spirits from the mouth, by having been given to restore animation; and hence, this is not always to be assumed as a proof of death by an excessive quantity of spirits. Neither is the absence of spirits from the stomach, a proof that death has not taken place from this cause.—See Christison on Poisons.

CASE 134.—In the body of a stout hostler, of about sixty years of age, found dead in the street by the police (January 1832), I found the veins and sinuses of the brain quite distended with blood. The brain was rather softer than usual.

The heart was nearly empty. The lungs were gorged with dark coloured blood. The blood was everywhere fluid. The stomach contained a full meal which he had taken for supper. Whisky was issuing from his mouth.

CASE 135.—In November 1834, I inspected the body of J. Haddon, a pensioner, between sixty and seventy years of age, who had been found dead about two o'clock in the afternoon of the 21st, sitting in the back apartment of a public house in the Cowgate, where he had got breakfast and afterwards drank several glasses of whisky. He had been much addicted to drinking.

There was serous effusion between the membranes of the brain and into its ventricles. The heart and lungs were natural, and the blood they contained was quite fluid. The aorta was somewhat dilated and thickened. The stomach was nearly empty, but had some odour of whisky, and presented a bright red blush at the middle part of its inner coat. No mark of injury on body.

CASE 136.—On the 10th December 1835, along with Dr Craigie, I inspected the body of Mrs M. the keeper of a brothel in Leith Street. She was about forty-six years of age, of stout appearance, and for some time previous had been an habitual drunkard. From the account given of her death, it appeared that, on the evening before, and on the morning of her death, she had been drinking plentifully with a party and the inmates of her house. Amidst the revelling of the company, about four o'clock in the morning, she became so much intoxicated that she was (as had been usual) carried to her bed-room and laid upon a sofa, where she was in the habit of sleeping out her libations before going to bed. On the sofa her body was nearly in an erect position, and the head fell forwards on the breast. A cloak had been thrown over her head and body to make her more comfortable. About nine o'clock in the morning, an inmate of the house thought she was sleeping very long, removed the cloak, and found her quite dead.

On inspection, *externally*, there was no mark of wounds or contusions. There was very great lividity of the face, head, and neck, extending downwards below the clavicles. This livi-

dity was uniform, except at a part under the chin where the skin was white, from the pressure of the strings of her cap, which had been tied pretty tight. There was some livor of the back, where there had been no pressure from the weight of the body. The whole body was rigid, except the neck, which was very flexible. The arms were bent over the breast. There was no abrasion of the cuticle at any part. The tongue projected a little from between the teeth. *Internally*, the brain was healthy in appearance, but there was considerable serous effusion between its membranes and into the ventricles. The large veins of the head and neck, as well as the right side of the heart, were distended with dark coloured fluid blood. Some dark coloured blood was also found in the left side of the heart. The lungs were of natural consistence, but dark coloured. The liver enlarged, of pale colour, and harder than usual. The kidneys were slightly diseased. The stomach smelt strongly of wine or spirits.

In this case death had obviously taken place from asphyxia, induced by excessive intoxication, which had been assisted by an unfavourable position of the head for respiration, and the confinement of the head under the covering of the cloak. The appearances after death confirmed this, and there were no indications to the contrary.

CASE 137.—M'Lusky, examined by Dr Corkindale, Glasgow, 1824. Sudden death. Fluid, having a spirituous odour, issuing from mouth. No morbid appearance but of turgescence of the vessels of the brain. Death by apoplexy from excessive quantity of ardent spirits.

In many cases of asphyxia from excessive intoxication, by the too copious potation of ardent spirits, marks of injuries from external violence are observed on the head, face, and other parts of the body. The appearance of these marks of injury and the sudden death of the individual, almost invariably occasion a suspicion of his having been murdered.

Such injuries may have been received accidentally when the individual became intoxicated, and before insensibility supervened, or he may have received them at the hands of another person; they may be only slight and superficial.

But by dissection, all mystery is, in many cases, dispelled, by demonstrating that the injuries are not of such a nature as to have proved fatal,—the internal and vital organs not being affected. This examination, along with the other circumstances of the case, as to the history of the individual before death, will render the cause of death quite certain. And even in cases of injuries of sufficient magnitude to have occasioned death, they may have been received accidentally ; so that an opinion of homicide should, in all cases of this nature, be very cautiously adopted.

CASE 138.—A short time ago, Dr Craigie and I inspected the body of Mrs T. aged fifty, who had died suddenly under suspicious circumstances, which appeared to be strengthened by some marks of violence upon the body. The deceased and her husband had, for some time previous, been addicted to excessive intoxication. On the evening before her death, a servant on entering the dining-room found both her master and mistress lying on the floor, unable to rise from excessive intoxication. Mrs T. was carried to bed. She was observed to have a black eye. The servants in the house then got intoxicated also ; and when they got up in the morning, Mrs T. was found to be dead.

Upon inspection of the body, we found a small wound at the posterior and lateral part of the scalp, which had evidently been received two or three weeks previously. On the forehead, temple, below right eye, on right cheek, and right arm, there were marks of recent ecchymosis to a small extent. None of these indicated very severe blows, except that under the right eye, and even this was neither extensive nor considerable. There was no fracture of any of the bones, nor mark of injury of any other part of the body.

The brain presented no unusual appearance, except considerable sub-arachnoid and ventricular serous effusion. When the brain was cut into, it emitted a strong smell of whisky. The lungs were natural. The heart was affected with concentric hypertrophy, by which the cavity of the left ventricle was greatly diminished in size. The arterial system was slightly diseased. Some food and fluid in stomach, which had a strong

spirituous odour. The spleen was softened into a pulpy mass. The muscles were of a light colour, and the cellular tissue was much loaded with fat.

None of the injuries found in this case, nor even the whole of them together, were sufficient to have caused death. And, on the other hand, the morbid appearances, together with the spirituous odour, found on dissection, confirmed the general evidence of a proneness to excessive intoxication, as well as of the fit in which the deceased had indulged on the evening before her death. The obvious conclusion, therefore, was, that death had taken place from excessive intoxication.

The deceased might have received the injuries which were observed on her body from another person, but they might also have arisen in consequence of falls upon the fender or other bodies, from intoxication. Hence, in such cases, it is only occasionally that even a charge of assault could be alleged against another person; a charge of homicide could not be established, and could not be made upon any proper grounds.

CASE 139.—I lately examined another case of a stout man, about forty years of age, who, after being somewhat intoxicated, joined an associate in drinking three additional gills of whisky, by which he became more completely intoxicated. In this state he got into a scuffle with some persons at a stable-yard, where he fell and cut the back part of his head. He was then laid down in an open shed with his clothes in a wet state, and his head uncovered; he fell asleep, remained there all night, and in the morning was found lying on his face quite dead.

There was very considerable lividity of the head, neck, and upper part of the breast. The veins of the brain, and those proceeding to the right side of the heart, were very much distended with dark coloured fluid blood, which flowed freely out when they were divided. The lungs were dark coloured, and their veins congested with blood. The trachea was filled with frothy mucus. The viscera of all the cavities were quite in a healthy state. There was a considerable quantity of watery-like fluid, having a spirituous odour, in the stomach, mixed with crumbs of bread. The bladder was very much distended with urine.

There were several slight marks of injury on the face and head; the largest of these was a superficial lacerated wound of the scalp, about an inch in length. None of the injuries were such as could have caused death.

In this case, the excessive intoxication, exposure to the cold during the night, and perhaps an unfavourable position of the head, caused his death.

As this subject is one of great importance, I shall add other two cases of death from excessive intoxication, accompanied with slight injuries, with which I have been favoured by Dr Corkindale of Glasgow.

CASE 140.—Agnes Love or M'Lachlan, Glasgow, December 1830.

Externally.—Contusion on right side of forehead, and abrasion of the skin of left elbow. Both of these of a trivial nature.

Internally.—Contents of the stomach had a strong smell of ardent spirits. The viscera of the head, chest, and belly, were in various respects unhealthy, but there was no disease or injury sufficient to account for sudden death. Hence, it must have taken place from an excessive quantity of spirits.

CASE 141.—Ann Kyle, Glasgow, April 1835.

Externally.—Severe contusion on right eye-brow, two others on scalp which seemed slight.

Internally.—No fracture of skull, nor morbid appearance of brain, but serous effusion into its cavities. Contents of chest and belly natural, some alimentary matter in stomach smelling of spirits.

Death was considered owing to apoplexy by excessive quantity of spirits, not to the injuries observed.

In cases of this nature the cause of death is to be inferred from the appearances on inspection of the dead body, the general evidence as to the way in which death took place, and the absence of any other cause by which sudden death could have been occasioned.

Cases of this kind are so numerous, that they could very

easily be multiplied, but those above detailed sufficiently illustrate the subject.

I have repeatedly had occasion to observe the reckless want of consideration on the part of publicans, for any thing but their own avaricious objects, in supplying young and intoxicated persons with excessive quantities of ardent spirits, quite regardless of the consequences to which it may lead. In more than one case, I have known intoxicated persons admitted into these shops, from which, after having been supplied with spirits, and paid their money, they have been inhumanly turned out at night to the street, and the door locked upon them. In the morning they were found dead, having perished, no doubt, from excessive intoxication and exposure to cold. When such cases as these, or of the regardless supply of spirits to young persons, occur and are made known to the public authorities, humanity certainly calls for some punishment upon the offender. The very common use of spirits, and other intoxicating liquors, without being followed by any fatal effects, has no doubt a tendency either to prevent or banish from the mind any idea of danger from the practice, yet their poisonous and fatal effects, when taken in excessive quantity, are not less certain, and ought to be generally made known to the public. It is not uncommon for the lower orders to ascribe the fatal effects of spirits to what they please to term "*bad drink*," when, if I mistake not, its only and greatest fault is, its having been too strong, and considered too good by its infatuated victims. Hence arises the very singular circumstance of the poisonous effects of an article of luxury in common use, and of a crime arising from its being given in improper quantities. Before immoderate quantities of spirituous liquors are pressed upon others, whether from motives of apparent kindness—as a frolic—from the desire of gain, or of plunder, if the danger, nay the imminent jeopardy, to which the lives of the individuals to whom it is given is exposed, were to be considered, it ought certainly to prevent such reckless conduct.

Of death by asphyxia from the inhalation of mephitic gases, I have personally had no experience. But when death happens from this cause, it is generally from accident. And the cause of death is to be inferred from the appearances in the dead

body, coupled with the general evidence connected with the individual cases.

H. Concluding Remarks on Homicide by Asphyxia.

In the foregoing pages it has been shewn that death by asphyxia takes place from different causes, producing modifications in its phenomena and appearances which are sufficient to characterise different distinct species of asphyxia. It has also been shewn that the appearances after death are by no means constant or strongly marked, in all cases of death by asphyxia. Hence, in many cases, we are obliged to infer the cause of death from a consideration of the general evidence, as to the previous symptoms and habits of the deceased, accompanied with the negative evidence of there being no other cause of death apparent.

In some cases, we can assert that death has been occasioned by asphyxia, but whether this has been induced by suffocation, drowning, excessive intoxication, or otherwise, can only be inferred from the general evidence. In other cases, where we discover no indications of asphyxia, we cannot say that death may not have happened in this way; for we have seen that, occasionally, no morbid appearances can be detected in the dead body, after death by asphyxia.

CASE 142.—In the case of S. M'Dougal, examined by Dr Corkindale at Glasgow, July 1831, a carriage wheel had passed over the trunk of the body and caused immediate death. On inspection, no appearance of recent injury was found in any of the cavities. The heart was empty. This appeared to be a case of syncopal asphyxia from the shock occasioned by the injury.

SECTION III.

Of Homicide by Wounds of the Thorax and Lungs.

Having already treated of homicide by those wounds and injuries of the respiratory organs which occasion death by asphyxia, it only remains for us to comment upon those wounds of the thorax and lungs which prove fatal from other causes.

The injuries of which I am now particularly to treat are, contusions and fractures of the ribs, and wounds of the pleura

and lungs. Homicide by injuries of this nature is not uncommon, and they prove fatal either from syncopal asphyxia or the depression of the constitution, induced by the shock from the injury, or from the inflammation and fever which are occasioned by the violence. The following are examples of homicide by each of these modes of death.

CASE 142 *a*.—On inspection of the body of Robert Smellie, whose immediate death had been occasioned by a carriage wheel having passed over him, near Glasgow, in October 1835, Dr Corkindale found contusions of the eyelids, and of the left side of the body, between the ribs and pelvis. Four ribs were broken on the right side and three on the left. Ecchymosis was also found under the sternum, at the heart, in the abdominal parietes, and on the intestines. He appears to have died from the immediate shock caused by the injury.

CASE 143.—T. Breckinridge was tried at Edinburgh, 18th March 1836, for culpable homicide, by having assaulted his mother, aged 84. He had seized her on 26th January, by putting his arms round her waist, and in the struggle forcibly compressed her chest, by which nine of her ribs were fractured, and she died on the 28th of the same month.

On dissection, Drs Christison, Dymock, and Weir, found that six ribs on the left side, from 3d to the 8th inclusive, as also three on the right side, 4th, 5th, and 6th, were fractured. Some inflammation of pleura in its early stage. There was some lateral distortion of the spine, and general emphysema of lungs. There was no part of the lungs wounded. Mrs Breckinridge had been asthmatic.

The ribs were smaller than usual, and softer and more brittle than is generally found even in aged persons. One of the ribs had been broken at two places.

In this case death seems to have been occasioned from the shock and depression of the constitution sustained from the injury, before inflammation had time to have taken place.

CASE 144.—In June 1824, Mr Newbigging and I inspected the body of an old woman, who was said to have died from a severe injury upon the chest, inflicted two days previously, by

a man who had absconded. We found marks of contusions on several parts of the body, viz., above the right eye, upon the lower part of the chest, and below the left clavicle. There was a mark of her having been bled from the left arm, and blistered on the breast.

The sternum was broken across, five ribs on the right side, and three on the left, were fractured. There was slight redness of the pleura lining the fractured parts. The lungs were quite in a healthy state. There were three or four ounces of coagulated blood in the mediastinum, below the fractured part of the sternum, and about two ounces of bloody coloured fluid in each side of the chest. Considerable vascularity and serous effusion were also observed in the brain. The inner coat of the aorta was considerably diseased.

In this case the immediate cause of death seemed to be the shock the system had suffered from the severity of the injury, operating on an aged and infirm person. There was very little inflammation present; there was no injury of the lungs; but the constitution must have been previously weakened by the chronic morbid state of the brain and aorta, which indicated intemperate habits.

CASE 145.—In the body of William Gordon, inspected by Dr Corkindale at Glasgow, in 1833, marks were found of severe contusion of the left cheek, which was livid and swollen from ecchymosis. The track of a contusion was also apparent along the whole length of the left side of the chest, and at the top of the haunch. The ribs on the left side, from the second to the ninth inclusive, were fractured. The lungs of the same side were consolidated, and in a state of violent inflammation, and there was bloody inflammatory effusion into the cavity of the chest. The fractured ends of the ribs had wounded the pleura and irritated the lungs.

In the above case death had been produced by inflammation of the pleura and lungs consequent upon the injury.

CASE 146.—In January 1825, Dr Corkindale inspected the body of William Johnston, at Glasgow, who had received an injury from a carriage wheel having passed over his chest. The integuments of the head were slightly injured. The clavicle had been separated from the scapula, and the 6th, 8th,

9th, 10th, and 11th, ribs of the left side were found to have been fractured. He died six days after the injury.

On opening the chest, the lungs on the left side were found to have been wounded by the broken extremities of the ribs, and were in a collapsed state. The same side of chest contained two pounds of bloody serous fluid mixed with flakes of lymph, and the whole of the pleura was inflamed and coated with lymph.

In this case death was to be attributed to inflammation of lungs and pleura, together with want of due respiration.

CASE 147.—W. Drover was tried at Glasgow, 6th January 1831, for the murder of his wife, Isobel Crooks or Drover, by inflicting upon her several severe injuries, on the 5th or 6th of November preceding, in consequence of which she died on the 26th of the same month. Mrs Drover had been much addicted to intoxication, and, in consequence, had often received severe falls.

On inspection, Drs Corkindale and Neilson found ecchymosed marks of contusions on the scalp, nose, right eyelids, different parts of the face, shoulders, elbows, haunches, knees, right ancle, and left foot. These were situated both in front and laterally. There was an extensive extravasation of blood situated under the skin of the left side of the back, and right side of the belly, as also under the skin and among the muscles below the right breast. The brain was found natural. In the chest there were six ounces of bloody fluid in the right side, and two ounces in the left. The pleura was affected with inflammation, which was greatest on the right side, where the 3d, 4th, 5th, and 6th, ribs were broken, under the external ecchymosis. The peritoneum was inflamed and coated with flakes of yellow lymph. The cavity of the belly contained a considerable quantity of serous fluid, and the stomach exhibited marks of inflammation both externally and internally.

The opinion given upon this case was, that death took place from inflammation of the chest and belly from severe injuries. These injuries were so situated that they could not, from their situations, have been produced by accidental falls on a road or floor. The case must have been aggravated by the intemperate habits of the deceased, but the injuries were so severe as

were sufficient to have caused death without such an auxiliary. Some weight seems to have been attached to this by the jury, who returned a verdict of culpable homicide.

CASE 148.—W. Neilson was tried at Glasgow, January 1837, for the murder of his son, by inflicting blows upon the side of his chest with a coal hammer, on the 24th October 1836, of which he died on the 2d of November following. On dissection, the 6th rib on the right side was found to be fractured; the right lung was almost completely collapsed; the pleura was coated with lymph, particularly around the fractured rib, and there were about 6 lbs. of brown coloured fluid mixed with flakes of lymph in the same side.

CASE 149.—William Gourlay, aged 17, was brought into the Royal Infirmary under my care, 1st June 1837, on account of having been thrown down by the horse and cart he was driving, by which he suffered a severe injury of his chest, from the cart-wheel having passed over it, about nine o'clock A. M. He seemed also to have received a concussion of the brain, as there were marks of contusion on his head, and he was affected with a degree of insensibility, from which he could only be roused by speaking to him. His pulse was quick, full, and strong, and his respiration hurried. He was therefore blooded, &c. but he died on the morning of the 4th, having lived only sixty hours after the accident. On dissection, five of his ribs on the right side were found to have been fractured. The lungs of the same side were collapsed, and there were about four pounds of sero-sanguineous fluid in this side of the chest. The whole of the pleura of the right side was affected with inflammation, and was coated with lymph. The broken end of one of the ribs had wounded the pleura, from which the hæmorrhage must have proceeded, but there was no wound in the lungs.

Many cases of much slighter injuries of the chest and lungs than those above, are followed by inflammation and death, in consequence of previous disease, intemperance, and want of proper care. But these cases will be afterwards detailed, when treating of the circumstances which modify the medico-legal character of injuries.

CHAPTER VIII.

OF HOMICIDE BY INJURIES OF THE NUTRITIVE SYSTEM, AND
ORGANS OF REPRODUCTION.*Preliminary Remarks.*

IN this chapter will be included an account of Homicide by injuries of the Nutritive or Digestive System, comprehending the whole of the abdominal viscera. It will also include that of Homicide by injuries of the organs of reproduction, including the viscera of the pelvis.

Homicide has frequently been committed by injuries of the parts contained in the abdomen and pelvis, by contusions and other wounds. These prove fatal in different ways. 1. By the shock or depressing impression made upon the nervous system. 2. By hæmorrhage. 3. By inflammation. And, 4. Some of them may prove fatal by preventing the nutrition of the body, or other consequences, at a considerable distance of time after the injury.

Several of these modes of death have been already alluded to in the preceding chapters, and some cases given in illustration of them. See pages 74 and 102. Of these, therefore, I shall only treat very shortly here, and subjoin a few illustrations of the other modes of death by injuries of the abdominal and pelvic viscera.

SECTION I.

*Of Homicide by Contusions, and other Wounds inflicted upon
the Abdomen and Pelvis.**A. Without Lesion of the Internal Organs or Inflammation.*

The fatal consequences which occasionally result from blows on the region of the stomach, immediately on their infliction,

is a point well established. (See p. 74.) This takes place from spasm or palsy of the heart. The following cases are related by Sir Astley Cooper in his Lectures:—

CASES 150.—“A man walking through Fleet Street, one day, happened to quarrel with a woman, when another came up, and gave him a blow in the region of the stomach, which caused almost instantaneous death. On dissection, no cause could be found to account for his sudden death. A man belonging to the India-House was attempting to lift a weight, when another came up, and jocosely said, “Here, stand on one side, and let an abler man attempt it;” and at the same instant gave him a slight blow on the stomach, when the poor fellow dropped down and expired. His body, upon being opened, shewed no marks of violence.”

CASE 151.—Benjamin Halliwell was tried at Lancaster, 14th August 1832, for the murder of his wife, by having given her a kick on the belly when she was in a state of pregnancy, in consequence of which she instantly died. Halliwell was found guilty of homicide, and was sentenced to be transported for life.

B. With Lesion of the Internal Organs, but without Inflammation.

When a lesion or perforation takes place in any of the internal organs, as of the stomach, intestines, gall-bladder, or urinary organs, by which their contents are extravasated into the peritoneal cavity, such intense pain is immediately occasioned, that the powers of the nervous system become remarkably depressed and death soon follows; even before inflammation begins, and without hæmorrhage, by failure of the action of the heart.

“Certain forms of mortal injury,” says Mr Travers, “are productive of sudden, excruciating, and unremitting pain, such as ruptures of the stomach, gall, and urinary bladders. Death ensues in these cases many hours sooner than where the pain is less intense, and before the morbid changes which take

place in consequence of the injury, are so far established as to make it credible that the result is to be ascribed to their influence." He also adds the case of a gentleman to whom he was called, affected with very severe pain in the abdomen, and who declared, that, if it was not soon removed, it would put an end to him. He died within twelve hours. There was a perforation from an ulcer at the pyloric orifice of the stomach, which allowed the escape of some of its contents into the abdominal cavity.* A case somewhat similar to this occurred to myself.

CASE 152.—A sick-nurse, who was attending upon an in-lying lady, was suddenly seized on the evening of the 14th January 1833, with violent pain in the upper part of the abdomen. This she considered to be cramp in the stomach, to which she had been subject. By warm fomentations, &c. the pain was allayed, and she was able to attend upon the lady and infant next day. About eleven o'clock in the evening of the 15th she was again suddenly seized with the pain and sickness; she fainted and expired, all in the course of a few minutes. On inspection I found a small perforation of the stomach, through which some of its contents had escaped into the abdominal cavity. There was also some recent effusion of lymph on some parts of the bowels, and extensive chronic thickening with ulceration of the stomach. This individual had long been affected with dyspeptic symptoms. On the evening of the 14th, probably the perforation of the stomach had taken place to a small extent, and became partially closed by an inflammatory process. But on the evening of the 15th it had reopened and increased, so as to admit of extensive extravasation of the alimentary matters into the abdomen, which suddenly proved fatal.

CASE 153.—I have been favoured with the following case by Dr J. G. Stuart:—A. B. a Coolee, was brought to Dr S. in consequence of wounds he had received. He had sword cuts on his left shoulder, left leg, back of head, and back; he had also a small punctured wound in his side, which appeared to be trivial. The surface of his body felt cold, and he com-

* See vol. i. p. 52. See also Christison on Poisons, p. 6.

plained of great oppression at the stomach. He died in a few hours. On dissection a small perforation of the stomach was found, through which some of his food had escaped into the belly.

C. Injuries fatal by Inflammation without Lesion of internal parts.

Contusions from blows, and other injuries of the belly, are sometimes fatal by inducing inflammation, though the internal organs are not injured.

CASE 154.—Thomas Baird was tried at Glasgow, April 1823, for the homicide of Robert Turner, by having inflicted blows on the belly with his fists, and a kick on the right groin, upon the 14th December 1822, of which he died on the 23d of the same month. On dissection Drs Corkindale and Cummin found the peritoneum much inflamed and covered with purulent effusion.

CASE 155.— — Ruthven was tried at Glasgow, April 1823, for the homicide of Daniel M'Grigor, by having knocked him down by blows with his fists, and kicked him on the breast, and otherwise maltreated him, on the 19th February, by which he died on the 21st of the same month. On dissection, Dr Corkindale found external marks of contusions on the region of the stomach, and at the right side of the body, nearer to the spine; and the peritoneal covering of the stomach and intestines were much inflamed.

CASE 156.— — Chalmers was tried at Glasgow, September 1835, for the murder of his wife, Margaret Maclean or Chalmers. On the 5th of July, Chalmers had inflicted on the deceased a wound on the head, by throwing a bottle at her, and two blows with his fist on the left side. On dissection, Dr Corkindale found distinct appearances of inflammation of the peritoneum, which he considered to be the cause of death.

D. Injuries fatal by Inflammation from Lesion of Internal Parts.

A rupture or other lesion of the intestinal canal, or any of

the viscera contained in the abdomen, may, by the effusion of foreign matter into the peritoneal cavity, cause violent inflammation, attended with so great depression of the nervous energy, that death very soon follows. The inflammation, in cases of this kind, is generally very rapid in its progress, and produces not only great increased vascularity, but very considerable inflammatory effusion, consisting of bloody serous fluid and flakes of yellow matter, both floating in the fluid, and coating the peritoneal surfaces. A very striking feature in these cases also consists in the very sudden and great depression of the action of the heart through the medium of the nervous system, as shewn by the feebleness of the pulse, the feeling of depression, the exhausted look, the coldness of the surface and extremities, as also the collapsed appearance, of the patient. The length of time to which a patient survives an injury of this sort is very various. Instances have been already given, where death took place before there was time for the supervention of inflammatory action. But where inflammation does take place, death may occur in eighteen, twenty-four, or thirty-six hours; or it may be longer delayed.

CASE 157.—Jane Clark, aged 9, on the 21st September 1832, received a blow from a stone upon the belly, a little below the navel. The stone had been of a considerable size, and had been thrown by one man at another with whom he had been fighting. It missed the intended victim, and struck this girl, who was standing by. She immediately complained of great pain in the belly, attended with a sense of burning heat within her. Her countenance became pale and collapsed, her extremities cold, and she had frequent vomiting. She quickly sunk, and died twenty-one hours after receiving the blow.

On the 24th September, I inspected her body. There was no mark of injury upon the body externally. But on removing the integuments of the abdomen, there was a small portion of extravasated blood, from an inch and a half to two inches in circumference, situated a little below the navel, and towards the right side. The peritoneum lining the anterior parietes of the abdomen was coloured by many deep red patches, caused by

increased vascularity. The surface of the bowels in many places exhibited the same red appearance, and were covered with an effusion of viscid, yellow lymph. At the right side of the abdomen, nearly corresponding to the situation of the mark of external injury, the small intestines and the omentum adhered together by recent lymph effused from the reddened patches. There was a ruptured opening in the ileum about half an inch in diameter, at the distance of about two feet from the stomach. Some of the contents of the bowel had escaped into the abdominal cavity; and the convolutions of intestine around it, together with a portion of omentum, were agglutinated at the part. A small portion of its coats, about half an inch in diameter, was almost completely detached from the side of the intestinal tube; for it remained attached only at one side. This torn portion, when replaced, closed up the opening like a valve. The adherent part of the omentum also seemed to assist in forming a covering to the aperture, and repairing the breach.

In this case it is probable that a natural closure of the ruptured opening would have taken place, had not the contents of the bowel escaped into the abdomen, and caused the violent inflammation and other effects which proved fatal. For the effusion of lymph and adhesion of the omentum to this bowel, by which this process might have been accomplished, seemed to have commenced.

CASE 158.—John M'Court was tried before the High Court of Justiciary, on the 11th November 1831, for the murder of his wife. Mrs M'Court, a middle-aged woman, was taken into the Royal Infirmary, on the 12th October 1831, at one o'clock P. M., by desire of Mr Black, surgeon to the Police Establishment. It was then found she had a hernia on the left side, which was very easily reduced by the house surgeon. This hernia had been strangulated and reduced by an operation by Mr Liston some years previously. There was therefore nothing to cause strangulation, or prevent the easy return of the bowel. It had been originally a femoral hernia, but, in consequence of the parts having been opened up and dilated by the operation, and the subsequent protrusion of the viscera, the sac and its contents occupied the labium.

This woman complained that she had been severely injured by her husband, by which great pain in her belly had been occasioned. She rapidly sunk very much, and died at half-past twelve at night, having been in the hospital only about twelve hours.

On inspection after death, the mark of a severe contusion was found on the right side of the belly, near the upper part of the haunch bone. A considerable quantity of turbid fluid was contained in the abdominal cavity, and the intestines adhered at several places by newly effused lymph. A portion of the small intestine, about three feet below its commencement at the stomach, was almost completely torn across.

This case presents several interesting questions for the consideration of the medical jurist. 1st, Was the rupture found in the small intestine really the effect of violence, or was it a spontaneous or accidental opening in a diseased portion of the bowel? 2d, If from an injury, did such a morbid state of the bowel exist as to render its rupture likely to have occurred with much less violence than would have been required in the sound state of it?

This unfortunate woman had been long affected with *hernia*, in consequence of which a portion of the bowel may have frequently inflamed, become softened, and at last burst, either spontaneously or by efforts at reduction. This view of the case is rendered *possible*, by the case of labial hernia with spontaneous rupture of the bowel, published by Dr J. Campbell in the Edin. Med. and Surg. Journal, v. xxxvi. There was also a smaller opening, with ragged softened looking edges, a little above the opening already described. This rather favours the idea of a spontaneous opening by a diseased state of the bowel and violence. The bowel was laid open at the opposite side, but no ulceration could be perceived. If there had been ulceration, which often ends in perforation of the bowel, the idea of spontaneous rupture would have been confirmed. But attention to the particulars of Mrs M'Court's case shews clearly that this did not happen.

1. In the first place, the pain in the abdomen did not occur till after the injury, and it was not relieved by the reduction of

the hernia, an operation which was not attended with any difficulty, there being no strangulation.

2. On dissection, the ruptured portion of bowel was found at a considerable distance from the hernial sac, and adhering to the convolutions of intestine surrounding it. This portion, therefore, could not have been that recently included in the hernial sac.

3. There was no inflammation at the hernial sac, nor any feculent matter, which would have been the case had the protruded portion of bowel been ruptured. Neither was there any mark of injury upon it.

4. The inflammation and effusion of blood which caused the adhesion, though quite recent, must have commenced from eighteen to twenty-four hours previously, and proceeded for that period; therefore several hours before the reduction of the hernia. Hence this portion could not have been contained in the sac, and therefore could not have been injured by the operation for reduction.

5. There was a distinct mark of injury externally, at the place where the ruptured bowel was situated; and this was confirmed by the moral evidence of the deceased having sustained an injury from her husband.

6. There was no appearance of ulceration on the internal surface of the bowel. Hence the conclusion that the rupture was caused by the injury.

CASE 159.—John M'Glashan, aged fourteen, was tried at Perth, April 1833, for the culpable homicide of Walter Macfarlane, aged 11, a healthy stout boy, who was beaten and maltreated by the prisoner, “by kicking him while swinging him round and round, then putting his hands on shoulders, and knee on back, he shoved him down a brae,” by which he rolled to the bottom of this steep sloping bank about eight feet in height. When taken home immediately after, he complained all day, chiefly of pain in his bowels and head; he seemed in great pain, and could not take food. But he went out that afternoon to see a wedding. He afterwards became worse in the evening. Next day he was a great deal worse, and vomited very much. The vomiting began on Friday evening, the day

on which he was injured. He became gradually worse, and was confined constantly to bed after the Monday following. The pain was very bad—he said he was dying—often said it was John M'Glashan who hurt him—was sensible to the last, and died on Tuesday morning. He had taken his breakfast heartily as usual on the morning of the injury, a short time before it happened. He got something from a Doctor, but none saw him. He got a little food on the evening, but no drink. Some whisky was given to him on Saturday, also on Sunday and Monday. Salts, rhubarb, senna, castor-oil, and powders were given to him.

There was no spirits in the house previously ; two gills were got altogether, of which his mother and others took a part. He got only about a-third of a wine-glassful at a time, which eased him when given. He vomited the medicines—they did no good. Had no passage downwards all the time he lived. On Sunday morning his father gave him sweet milk and pepper—all came up, and he vomited a little “lappered blood” (coagulated blood) among the milk.

Upon inspection after death, Dr Malcom, and Messrs Robertson and Fletcher, surgeons, found no external mark of injury upon the body. But within the abdomen there was a considerable quantity of pus, and extensive agglutination of the bowels by effused lymph. The whole of the intestines appeared much inflamed. At the concave part of the stomach, there was a perforation through its coats about the size of a sixpence piece ; “and near to this hole there were two pretty large spots of a purplish colour, as if about to go into the same state of erosion.” The other parts of the body presented a healthy appearance.

The opinion given by the above gentlemen, in their report upon the case, was, that the inflammation of the bowels of which Macfarlane died, was occasioned by the injuries he received by the conduct of M'Glashan. But when examined as witnesses at the trial, Dr Malcom and Mr Robertson stated it as their opinions, that though Macfarlane died of the effects of the injuries, the perforation in the stomach was not the effect of external violence, but of erosion after death. They

farther thought that the opening had not been caused by ulceration.

The correctness of the opinions given in this case, may be fairly questioned. From the experience of other cases, it is more probable that the opening in the stomach was a rupture occasioned by the violence which the boy received, than by any other cause. This would at once account for the immediate and quickly fatal inflammation which occurred after the injury. The inflammation and perforation that existed could not be well accounted for otherwise, as there was no mark of external violence, and the inflammation did not seem to have arisen from any other cause. The medical men do not seem to have been aware of the possibility of an opening being caused by external violence. But the boy having vomited coagulated blood, shewed that a lesion of the stomach had existed during life; and the purple spots (from ecchymosis, I presume), called a process of erosion, must also have existed before death. Hence it is to be inferred, that the violence inflicted on Macfarlane had caused a rupture of the stomach with its usual consequences.

This was a question of great importance in this case; for, if inflammation only had been excited by the contusions, without any rupture of the stomach, the treatment which the boy afterwards received was calculated to aggravate his case, and render an injury fatal, from which, under other circumstances, he might have recovered. On the other hand, if the injury had caused a rupture of the stomach with effusion of its contents into the belly, this may be said to be an injury inevitably of a mortal nature.

M'Glashan was discharged by a verdict of "not proven," by a majority of the jury.

CASE 160.—James Tolmia was tried at Edinburgh, June 26. 1837, for the homicide of Andrew Shaw, by having struck him on the 9th May with his fists, and kicked him on the belly with his foot, of which injuries he died next day, having lived only twenty-four hours.

On dissection, there was no mark of contusion on the exter-

nal parts of the belly ; the peritoneum lining the parietes of the belly was much inflamed, and it adhered to the bowels and omentum by recently effused lymph. The bowels were also very vascular and coated with lymph. The ileum was found to have been ruptured, and the opening, which was about half an inch in diameter, had allowed the escape of feculent matter and lumbrici into the abdominal cavity. The quantity of sero-purulent fluid effused into the belly was also very considerable.

CASE 161.—William Wright was tried at Edinburgh, 14th December 1835, for the murder of James Imrie, a stout man, about thirty-five years of age, by having stabbed him in the belly with a knife. Immediately on his receiving the wound, which happened on the evening of the 15th of October, Imrie was able to walk to the Royal Infirmary. The wound was at the lower part of the right side of the abdomen, just above the groin ; it was about an inch and a-half in length, and several inches of the small intestines protruded from it. The protruding portion of bowel was returned, but peritonitis supervened ; and although he was actively treated under the direction of Professor Turner, he died forty-two hours after the injury.

On dissection, Professor Turner and I found that some branches of the epigastric artery had been wounded, and six or eight ounces of coagulated blood had been effused into the abdominal cavity. There was an opening in the ileum, corresponding to the size and form of the external wound. Through this opening in the bowel, some of its contents had been extravasated into the peritoneal cavity, by which violent inflammation, attended with much inflammatory effusion on the peritoneum, had been occasioned.*

CASE 162.—William Lindsay was tried at Glasgow, December 28. 1831, for the homicide of William Mason, by stabbing him in the belly, of which injury he died next day, having lived only fifteen hours. The wound was $4\frac{1}{2}$ inches long, so that the bowels protruded. The protruding bowel was found to have been wounded in three places ; there were 10 oz. of blood effused into the abdomen, and the peritoneum was much inflamed.

* This and other three preparations of ruptured bowel are in my possession.

spots ; no external mark of violence except an abrasion of the cuticle of the right cheek. In the mouth there was a quantity of the debris of lint or tow. When the parts were dissected, considerable ecchymosis was found on each side of the trachea. The windpipe and air-tubes contained bloody froth. The blood in the heart and other parts was dark coloured and fluid. The other parts of the body were natural.

The proof of Marshall's guilt rested chiefly on the circumstances of his wife having been seen in her usual health, by several of her neighbours, about two hours before she was found dead, and no other person had been in the house with her except her husband. When found, her mouth was stuffed with tow.

In this case it is presumed to be highly improbable that the deceased would have put the tow into her own mouth for the purpose of suffocation ; but the marks of forcible compression of the throat, which could not have been inflicted by herself, was proof that violence had been inflicted by some other person. Now, the only person near her was her husband, who came out of the house immediately after she was dead, and pretended not to know where she was. Hence the inference of his having been the murderer. It had been perpetrated without the neighbours in the adjoining house having heard any cries or noise, though they were only separated by a thin partition.

CASE 106.—In October 1833, along with Dr Christison, I inspected the body of Mrs M'M—— at the police-office, supposed to have been strangled by her husband on the previous morning, perhaps from thirty-four to thirty-six hours previous to the inspection.

Externally.—The deceased seemed to be an Irishwoman of the lowest rank, and about 40 years of age, and was said to be much given to intemperance. Face and neck livid, there had been some blood issuing from the mouth. Several recent scratches on neck, under the chin ; eyes much injected with dark-coloured blood ; tip of tongue projecting from between the teeth. Some

slight appearance of the marks of a tight ligature about the neck at the sides of the larynx. There were marks of contusions on the upper part of the head above the left ear, and on the left arm above the elbow ; the latter seemed to be less recent than the others. Another slight mark of contusion on right leg.

Internally.—The brain and membranes natural, it was rather more injected than usual with dark-coloured fluid blood. The choroid plexuses were quite of a livid fleshy appearance. The veins of the neck and upper part of chest, when divided, poured forth fluid dark-coloured blood very copiously. The right side of the heart and large vessels contained dark-coloured fluid blood. Heart natural, except a slight dilatation of the arch of the aorta. Lungs natural in colour and consistence, though collapsing less than usual ; when cut into, the incision was a livid fleshy colour, and venous blood was copiously poured out. The congestion, particularly in the right, seemed considerable ; no blood or froth in the larynx or trachea ; tongue coated with a white fur ; abdomen natural ; stomach contained some small portions of half-boiled potato, and some boiled barley-corns ; no smell of spirits ; liver of a light colour, and mottled, but not to a great degree ; upper part of the spine and spinal cord healthy. *Opinion.*—It seemed to us evident that this woman had died from suffocation ; but whether from accident, suicide, or murder, was a very nice point to determine, and could only be decided by a knowledge of all the circumstances of the case, which we did not then possess. Death might have been by accident, by lying on her face and falling asleep in a state of intoxication ; she might have strangled herself ; or death may have been occasioned by another person, by means of a handkerchief twisted round her neck. The latter is probable, from the appearances on dissection, and other circumstances.

The following are the circumstances which I learned from the general evidence in this case.

The deceased and her husband had been in a state of intoxication from spirits for several days, and were constantly quarrelling, beating one another, and disturbing the neighbourhood. On the night in question, they had both arrived at home so

I shall just add one case, which I examined some years ago, of rupture of the bladder during delivery.

CASE 166.—A young woman, aged 18, in a state of great poverty and wretchedness, was delivered of an infant in a filthy apartment in one of the closes of the High Street. She was immediately afterwards seized with peritonitis, and died in three days. On dissection, I found extensive peritoneal inflammation and effusion of lymph over the surface of the intestines and abdominal parietes, as also about 2 lbs. of turbid fluid in the cavity of the belly. The bladder appeared to have been much distended; it was now flaccid and collapsed; and there was a ruptured opening at the upper part of its left side, through which the urine had been extravasated into the abdomen, and caused the peritonitis.

CHAPTER IX.

OF THE CIRCUMSTANCES WHICH MODIFY THE MEDICO-LEGAL
CHARACTER OF WOUNDS AND OTHER INJURIES.*Preliminary Remarks.*

SEVERAL circumstances may operate very materially in altering the medico-legal character or degree of culpability of wounds and blows. They, therefore, tend to modify the degree of crime of the accused—some of them tend to aggravate, others tend to lessen, this guilt; and hence they demand very particular attention. The circumstances to which I allude operate to a certain extent in most cases; and they are of great importance, on account of the effect they have in fixing the innocence or the degree of guilt and punishment of the accused. They are circumstances which can be ascertained and estimated only by the medical jurist; and, therefore, demand his careful consideration in forming an opinion upon them. The duration of life after the injury—the age—sex—habits and constitution of the individual; previous injury or disease; subsequent injury or disease; and the conduct and treatment of the injured person, are each circumstances of great medico-legal importance, which may influence the medico-legal character of an injury which has proved fatal.

But before remarking upon these topics individually, I shall premise the medico-legal classification of injuries, and the leading inquiries at law regarding them.

SECTION I.

Medico-legal Classification of Wounds from the degree of danger attending them during life.

In the case of a wounded person, we are often called upon to say, whether or not the wound is attended with danger, and what the degree of that danger is; and, in the case of a per-

son who had died after receiving a wound, whether this has been of such a nature as to have inevitably occasioned death. In cases, also, where individuals have been maimed or mutilated by wounds, we are often called upon for an opinion as to the degree of deformity, impediment to functions, or mutilation produced by these injuries.

From the details already entered into and illustrated, much light is thrown upon these questions, and their discussion facilitated. In order to a wound being of its own nature essentially dangerous or mortal, some of the systems immediately necessary to life must have been injured, in the manner already described. And the degree of deformity, impediment, or mutilation, must be estimated by the nature, degree, and effects, of the injury upon some important parts of the body.

The proper medico-legal *definition* of wounds has been already given; but they may also be arranged into a medico-legal *classification*, consisting of *slight*, *severe*, *dangerous*, and *mortal* wounds.

A correct prognosis, or a near approach to it, could, from experience and the general principles laid down, in most cases, be formed under ordinary circumstances. But from the variety of extraordinary circumstances, which in many cases, even of slight injuries, occur to modify their effects, the true importance of the injury is often shrowded in obscurity, requiring the utmost knowledge and skill to unravel it. Here, therefore, lies the chief difficulty in medico-legal practice; and hence we are approaching the discussion of those questions regarding homicide, which are of the greatest nicety and importance, and to which our previous discussions may only be said to have been preliminary.

1. *Slight wounds* are those affecting parts not connected with any of the vital organs,—of small extent, and which, in general, heal readily without leaving any impediment or deformity. Such as slight blows and incisions upon parts unimportant to the functions of life.

2. *Severe wounds* are those of considerable depth or extent, though not connected with any of the organs essential to life; which are curable, but which may leave deformity or impair

the functions of some useful part; such as wounds of the face,—the loss of an eye,—of the nose,—one or more fingers,—the hand,—the ear,—injury of the testicle, tendo achillis, tendon of the rectus femoris, or of other important muscles.

3. *Dangerous wounds* are those affecting directly or indirectly the functions of those organs which are essential to life; wounds from which the person may recover, but are of a nature that frequently prove fatal; such as wounds of the nervous, respiratory, circulating or nutrient systems. It cannot lessen the dangerous character of such injuries, that others apparently similar have frequently recovered. These recoveries are exceptions to the general result, and therefore cannot justify either an assertion of the non-dangerous nature of a wound which is most commonly fatal, or an opinion that the patient might have recovered by other treatment.

4. *Mortal wounds* are those irrecoverable lesions of the vital systems, or organs immediately necessary to life, which prove either instantly or very speedily fatal. The injuries hitherto considered and illustrated are wounds of this nature; consisting of severe injuries of the brain,—of the respiratory system,—of the circulating, or nutrient systems. These are of their nature incurable and fatal to life. Some injuries which are generally mortal may possibly be recovered from,—instances of such being on record; but these injuries, though apparently the same outwardly, may be different internally, for this cannot always be ascertained before death,—as in wounds of the chest, belly, fractures of the skull, and injuries of the brain. Others, though of a mortal nature, may not prove immediately so; such as some injuries of the lungs and chylopoëtic viscera, under which the patient may live for a considerable time after the injury.

This division of wounds may always be kept in view, though the character of the wound may be very materially altered by the operation of the circumstances afterwards to be mentioned. Thus, a slight wound may become a dangerous wound, or one which is not necessarily mortal may cause death from the influence of extraneous or accidental collateral circumstances; such as neglect, the state of constitution, or improper treatment. Still these are to be looked upon as exceptions to the

ordinary course of things,—to be considered as injuries modified by other circumstances ; and the causes of their modification require to be pointed out, in order that the blame may be laid where it properly belongs.

I shall now proceed to state the inquiries at law respecting homicide, before proceeding to the consideration of those circumstances which alter the medico-legal character of injuries.

SECTION II.

Of the Inquiries at Law regarding Homicide by External Violence.

In order that the reader may know precisely what the law requires judges and juries to be informed upon by medical men, in cases of homicide, I here insert the necessary quotations from the work of Baron Hume, who is considered one of the highest authorities in the criminal law of this country.

1. *The person must die of the harm libelled.*—“ Next it must be shewn that the person died of the harm or mischief libelled ; of that whereof the pannel was actor, or art and part. For though a person be severely wounded, yet if he recover so as to come abroad and engage in his ordinary occupations, there is no reason why his death following afterwards, which must here be presumed to be owing to some other cause, should be the ground of a charge of murder.

“ But even cases of a far more delicate nature must be decided in the same way. In a combat between John and James, John receives a wound of that sort which either may or may not prove mortal ; and James flies for his safety, and leaves John upon the field to the care of his own friend. If in these circumstances they are surprised by ruffians, who strip and rob John, and beat out his brains ; no charge of homicide lies against James, because John dies by the hand of others, and not of the wound given him by James. Or again : A person of a weakly habit receives a wound, of which, after some space of time, he is cured ; but owing to the long confinement, he is taken ill of a consumption, or some other malady incident to

such a state of weakness, and of this he dies. It is true the person who gave the wound has here great cause for uneasiness of mind, but it is in that sort of suffering only that his punishment in this world must lie. Inferences of this kind are far too remote to serve as the grounds of judgment in human tribunals; and as even in the civil question of deathbed, these two ailments would on that account be held to be distinct, much more must the same rule be applied in the trial of the assailant for his life." Hume, 176.

2. *The cause of death must be certain.* "Much the same case it is, if a person receive some slight injury in itself nowise dangerous or difficult to be cured, but which, owing to his obstinacy and intemperance, or to rash and hurtful applications, degenerates in the end into a mortal sore; for the man here has killed himself, and the first injury is the occasion only of his deed." Thus, in the case of William Mason, July 1674, it was pleaded, that by the refusal of proper remedies, and persisting to keep abroad in the night, and in severe weather, the deceased had irritated a slight cut in the head into a mortal complaint. In another case, that of Thomas Crombie, 1625, the deceased, it was alleged, *misgoverned* himself by hard drinking, keeping much company, and dancing at a bridal, contrary to the advice of his surgeon, and so the prosecution was departed from.

"The like judgment must be passed on another set of cases, those in which the injury sustained from the pannel is only one circumstance among several, which have contributed to the fatal issue, and is of such a kind that it cannot be well ascertained what its influence in the case has truly been. There are, for instance, many cases of disease, in which any sudden disturbance and alarm, or a draught of cold water, or a glass of spirituous liquor improperly administered, may produce a great and ultimately a fatal change in the state of the patient. Yet still, if it were even clear that the thing has been maliciously done, it must be very difficult, in such circumstances, to support a charge of murder; because the disease itself is here the principal and primary cause of the person's death, and it cannot be shewn with that certainty of which the law is justly desirous in such inquiries, that it has only proved mortal, owing to this

adventitious exasperation.” Thus William Duff of Braes, and others, broke into a house, and so affrighted a poor woman in child-bed, that she was thrown into a fever and died. The court dismissed the libel. Also in the case of Patrick Kinninmonth, who broke into a house and so alarmed a woman recently delivered as to be injurious to her health, and cause the death of the infant at her breast. He was found liable to arbitrary punishment for the offence, but no notice was taken of the death of the child.

“ These things have been received in favour of the pannel, to avoid the possibility of doing him injustice. But it is no less requisite to the due punishment of the guilty, that this rule be circumscribed also on the other side, and that the charge of homicide be sustained in every situation where the deceased obviously dies of and by the injury done him by the pannel, whatsoever in other respects his condition may have been. Under this rule of judgment fall cases of two different descriptions.”

1st, *When the person killed is on deathbed.* “ One class consists of those cases where it may be argued that the deceased was already in a dying condition, and, according to the course of nature, had but a short time to live. Now, there can be no doubt, that in such a circumstance the manslayer has no sort of defence. If one who is old and bedrid, or in the last stage of a mortal disease, shall be stabbed with a lethal weapon, or knocked on the head with a stake, this is murder,—equally so as to destroy in the same manner one who is in the full vigour of years and health. Upon the issue of diseases it belongs to God only to determine; and if a certain judgment could even be formed concerning the event, still it is true that the pannel hath taken his neighbour’s life, which must be murder, how low soever the value of that life to himself or others.”

2d, *When the wound might have been cured.* “ The other class of cases are those which leave room to argue, or conjecture, that, in more favourable circumstances, the injury might not have had a mortal issue. And in general, it seems to be true that as little can there be any allowance of this sort of plea.”

But if death took place *ex malo regimine*, the case is different. If death took place from grossly erroneous medical

treatment, the person who inflicted the wound would not be held responsible.

“ Though death do not ensue for weeks or months, yet if the wound be severe, and keep in a regular progression from bad to worse, so that the patient continually languishes, and is consumed by it as by a disease, this, in reason and in law, is quite the same as if he died upon the spot.”*

SECTION III.

Of the circumstances which alter or modify the medico-legal character of injuries.

A. *The interval of time between the receipt of an injury and the death of the individual.*

Must the deceased have died within a limited time after the injury, in order to establish a charge of murder? Different countries have different laws upon this subject. In New York, the statute upon the subject requires, that the individual murdered must die within six months after the injury; in Lombardy, within a year. In Prussia, though there is no precise law on the subject, the person must have died within nine days. In France the time is fixed at forty days. In England a murderer is held amenable if the person dies within a year and a day.† In Scotland there is at present no limitation upon this subject.

If the wound be severe, and the patient goes on progressively from *bad to worse*, and dies, it is held, in reason and in law, the same as if he had died on the spot. Baron Hume mentions two examples of this; 1st, Where a man was wounded in the arm and shoulder, lingered and died in three months; 2d, Of John Caldwell, who robbed the mail, and wounded the post-boy with a cutting instrument. He was left exposed to the cold; he fevered and died, after lingering two months. Caldwell was convicted and executed. Cases have also been men-

* Hume on the Criminal Law of Scotland.

† Beck.

tioned above, where death was distinctly traced to injuries after much longer intervals.

An exculpatory plea of this kind was repelled, where the deceased had lived four months after the injury. But even when the person is able to go about, the injury may be as certainly the cause of death as if it had been immediate ; but from the greater probability of the operation of other causes, it is necessary to be very careful in the investigation of all the circumstances, which should be ascertained with certainty before giving an opinion.

CASE 167.—A few years ago I inspected the body of a coachman about fifty years of age, who received a severe blow from the pole of a carriage upon the left side of his chest. Violent pleuritic inflammation supervened, by which the pleura of the lungs adhered to that of the ribs, to an extent of about six inches in diameter. This seems to have been followed by serous effusion into the left side of the chest ; for, the lungs of that side were collapsed, and the pleural cavity contained several pounds of serous fluid mixed with flakes of lymph. Previous to the injury he was a remarkably stout and healthy man ; but after the illness it caused, he continued in delicate and declining health for two years, when he died. There was no other disease of any part of the body. The illness and death of this man, therefore, could be distinctly traced to the effects of the injury received two years previously. But this long interval afforded room for the medical treatment he had undergone, and the care he took of himself, to have caused such a modification of the effects of the injury, as would have justified a jury in the mitigation of a verdict of homicide.

But Baron Hume, the highest legal authority on our criminal law, says : “ It may be argued that there ought to be some limitation in this matter ; because, where the illness is of very long duration, it is difficult to trace the influence of the original injury, and its connection with the fatal issue, in that clear and palpable manner which is to be wished in the investigation of a capital charge. But with us,” he adds, “ so far as I have

observed (nor does this course seem ever to have been attended with injustice), that circumstance (the distance of time) has only been considered as one among others in the sum of evidence in the case."

Considering that wounds may prove certainly fatal, even at a very great distance of time, such as wounds of the windpipe, œsophagus, lungs, intestines, or injury of the head, a limitation would not be expedient. More especially, there seems no occasion for this, as the protraction of life gives greater opportunity for the occurrence of exculpatory circumstances in favour of the pannel; such as improper conduct on the part of the patient, bad medical treatment, the accession of some other disease, and the like; all which, together with the length of the interval, would be carefully considered by a jury, who would give them due weight in estimating the degree of guilt and responsibility of the accused.

But when the person gets so far well as to go about, though he never recovers robust health, and then declines and dies, the injury is not considered relevant to infer the pain of death. The injury and the decline would be considered as two distinct ailments; because their connection is too remote for establishing a charge of murder.*

Wounds not of their own nature dangerous, may become so from their extent and long continuance; as extensive injuries of soft parts, followed by long continued and profuse discharge.

CASE 168.—James Mitchell lay in wait at the head of Blackfriars' Wynd, Edinburgh, to assassinate Archbishop Sharpe. He fired a pistol at him, but missed his aim, and inflicted a severe wound on the arm of the Bishop of Orkney, by which he languished for several years, continued infirm and ailing, and at last died.—Hume.

Cases have been mentioned in the preceding chapters of death from injuries after intervals varying from a few weeks to several months or even years.

There are numerous cases on record, as well as in the fore-

* Hume.

going chapters, shewing the impropriety of maintaining, as a general proposition, that if the person injured recovers from its immediate effects, death should not be ascribed to the violence ; for in these cases, death can be as distinctly traced to the injury, as if the person had not recovered from its primary effects.

B. Of the Age of the Individual as a circumstance modifying Injuries.

As a general rule, adults and middle-aged persons are in circumstances better fitted to recover from injuries, than either younger or older subjects. The greater robustness and strength, both of mind and body, enable those of adult and middle age to withstand the shock and treatment of severe injuries much better than others. This is well shewn in cases of burns.

On the other hand, the very young and the very old are much more easily upset by injuries than others. In them, the *vis vitæ* is weak, and therefore easily annihilated. Besides, in infancy and childhood there are some peculiarities, such as the imperfect ossification of the cranium, which expose the vital organs at that age more to the influence of external agents than in adults.

There is, however, one species of injury an exception to the rules now laid down, namely *fractures* of the limbs. These are generally less dangerous, and more speedily cured in young subjects than in adults.

C. Of Sex as a Modifying Circumstance in Injuries.

In some cases the sex causes an aggravation in injuries ; as in the cases of wounds or blows upon the female breasts, which often give rise to very serious consequences ; and on the belly in cases of pregnancy.

Mutilation and disfiguring of the countenance, are also more injurious in the cases of females than in men, by their lessening the chance of marriage. In civil suits particularly, this would well deserve consideration.

D. Of Constitutional Peculiarities as a Modifying Circumstance in Injuries.

There are constitutional peculiarities of frequent occurrence, which render injuries much more serious to some individuals, than the same would be to others. Malformations or transpositions of the abdominal or thoracic viscera,—remarkable thinness of a part of the cranium,—preternaturally phlogistic or hæmorrhagic diathesis,—or a weak and unhealthy constitution, whether from natural causes or intemperance, are those chiefly alluded to.

CASE 169.—Dr Gordon Smith mentions the case of a man who fractured the skull of a boy, for committing a depredation on his grounds, by a blow with a stick. Here the man only intended chastisement for the provocation he had received. And it was found that the stick was not of a size from which such mischief was to have been anticipated. Also, that the skull of the boy was unusually thin.

CASE 170.—William MacEwan was tried at Perth, September 1830, for the homicide of a boy whose shoulder he had dislocated by a blow; which injury had led to a fatal result. But, the boy being of a weakly and scrofulous constitution, and his arm having been subjected to the operations of an ignorant bone-setter, inflammation and white-swelling ensued, which caused his death. The panel was acquitted by the direction of the court.

To an unfortunate state of constitution, or of previous bad health, are to be ascribed the fatal results which happen in cases of slight injury, or such as would not of itself have proved fatal, when followed by erysipelas or tetanus. These being rather viewed as accidental circumstances from peculiar constitutional causes, than the necessary or usual consequences of the injury. Hence such cases only form inferior degrees of homicide.

One of the most common causes of death from slight or trivial injuries, is that unhealthy state of the body, which is the

effect of habitual indulgence in the use of spirituous liquors. In such individuals, violent inflammation and fever, as also erysipelas, and that peculiar disease called delirium tremens, very frequently supervene upon slight injuries, and are followed by a fatal termination.

CASE 171.—Christian Paterson, who quarrelled with another inmate of a house of ill-fame, was tried at Edinburgh, December 1823, for the murder of the latter, by having struck her on the head with a pair of tongs, and caused a wound, which, though not very severe, was followed by erysipelas which proved fatal. The charge was restricted to one of culpable homicide.

CASE 172.—J. Campbell, a gamekeeper, was tried at Glasgow, April 1819, for shooting a poacher. The contents of the gun were lodged in the thigh of the latter; who, having been removed to the Infirmary of Glasgow, without any dangerous symptoms, was there seized with erysipelas and died. Erysipelas was prevalent in the hospital at the time; and it was strongly contended by the public prosecutor, that, if the deceased had not been wounded by the pannel, he would not have been exposed to the contagion of erysipelas and died. He, therefore, inferred that death was, by a circuitous but legitimate consequence, owing to the wound. But by the direction of the judges the pannel was acquitted.

In a preceding chapter (see page 80) I alluded to the case of a man who having received an injury of the face by sulphuric acid, and having been bled at the arm, died from inflammation of the veins. This charge of homicide was also restricted to that of assault only; his death having been owing to a subsequent, unfortunate, but accidental, circumstance, not that for which the prisoners were responsible.

The occurrence of tetanus or locked-jaw from wounds is much more uncommon than the diseases above mentioned. The following are examples of it:—

CASE 173.——— Mackenzie was tried at Edinburgh, March 1827, for the murder of Alexander Clark. Mackenzie kept an

ill-famed public house, into which Clark and a companion had gone on the morning of the 8th January to get a dram. Clark's companion left him, and was succeeded by two girls of loose character, who robbed him. A scuffle ensued. Mackenzie came to the assistance of the girls; he fought furiously with Clark, threw him down, kicked him in several places, cut his nose with a blow, and turned him out of his house.

Clark went immediately home and told his friends that he had been "robbed and murdered." He was confined to bed with the bruises he had received; but the medical gentleman who then saw him did not consider his life in danger.

On the 13th, he was able to go out for a short time upon business. But on the 11th he complained to his friends that he felt contraction of the mouth, stiffness of the jaws, difficulty of swallowing, and dimness of the eyes. He could not take food on account of the contraction of his mouth and difficulty of swallowing.

On the 15th, necessity made him go out to his work; but he felt himself so unwell that he was obliged soon to return home. He was able to take a little spoon-meat, but, being unable to open his jaws, he could only get the spoon a short way into his mouth. He was obliged to go out again in the evening for half an hour to attend to a horse that was under his charge. When out he felt very unwell, and complained that he felt as if he would fall down. On his return home he went to bed.

On the 16th, his mouth was almost quite closed. Medicines could only be got into his mouth where a tooth was wanting. He was able to identify Mackenzie as the person who had injured him, and to make a declaration in presence of the Sheriff. He continued to become worse till the 19th, when he died, having been previously seen by Mr Liston and Mr Mackenzie. On the day subsequent to his death, I accompanied these gentlemen to inspect his body by request of the Sheriff of the county.

Externally there was a small ragged lacerated wound upon the nose, at the lower extremity of the suture which unites the two nasal bones. There were also marks of contusion upon the right elbow and left hip joints.

On dissection there were found several small portions of extravasated blood under the integuments of the head, particularly above the right eye. The brain was natural; the vessels filled with blood; some serum in the ventricles, and in the spinal sheath. The posterior part of the *fauces* was of a dark-red colour, from congestion of the vessels of the lining membrane. This appearance was distinctly circumscribed, and terminated at the upper end of the œsophagus, root of the tongue, and posterior part of the nostrils. The membrane lining the air-passages had a similar appearance, and contained a considerable quantity of fluid tinged with blood and purulent matter. The larynx was open and dilated; there was some congestion of blood in the lungs; but the abdomen was natural.

We reported to the Sheriff that Clark had died from “locked-jaw” (*tetanus*), brought on by a wound upon the nose; and that the appearances on dissection, produced by the other effects of the injuries, were not of themselves sufficient to account for his death.

An important question then occurred, whether the tetanus of which Clark died had been caused by the injuries he had received, or imprudent exposure to cold while suffering from these injuries, or partly from both of these causes? It will be observed that he received the injuries on the 8th of January. He did not go out till the 13th, while on the 11th he had complained to his friends of the tetanic symptoms. There was therefore no exposure to cold, or any other cause which could have occasioned tetanus, between the receipt of the injury and the time at which its symptoms first appeared. Though tetanus sometimes occurs from injuries in this country, it is by no means common; and it very rarely takes place from exposure to cold.

We therefore stated as our opinions at the trial of Mackenzie, that Clark’s death had been occasioned by tetanus, which had supervened upon the injuries he had received on the 8th of January. But that though this was an occasional, it was not a common or necessary consequence of wounds.

The charge of assault was clearly proved against Mackenzie, who had inflicted the injuries. But the charge of murder was

departed from by the public prosecutor, with the approbation of the judges ; because the injuries Clark had received were not of a mortal nature, and had been inflicted without any apparent intention of committing murder ; and likewise, because locked-jaw was not a necessary or usual consequence of such injuries. The jury, therefore, returned a verdict of *culpable homicide*, and Mackenzie was sentenced to transportation for fourteen years.—See a similar case, Smith's For. Med. p. 273.

CASES 174, 175.—I have been favoured by Dr Corkindale with two cases of death from tetanus, subsequent to injuries, in medico-legal cases.

In the first of these, H. M'Rendrick, aged 5, received injuries on various parts of his body, on the 14th of June 1825. These consisted of a contusion on the right temple ; two joints of the little finger of the left hand removed by laceration ; the toes of the left foot bruised, and a deep lacerated wound across the ham. Fever took place, and some sloughing of the contused parts, which on the 23d assumed a healthy appearance ; but symptoms of tetanus then commenced, consisting of locked-jaw, and rigid contraction of the muscles of the neck and back ; convulsions supervened in frequent paroxysms ; and, during one of these, on the 28th of the same month, he died.

In the second case, John Hosey, aged 6, Glasgow 8th June 1835, received a wound on the right cheek, extending to the angle of the lower jaw. This wound had been enlarged by a surgeon, in order to extract a piece of wood from it. The boy afterwards became affected with a painful rigid contraction of the muscles of his neck, of the lower jaw, and subsequently of the whole trunk and limbs, which shortly proved fatal.

In some cases, inflammation and fever, followed by gangrene, take place from injuries which would not otherwise have proved of a serious or fatal nature. This is consequent either upon a bad habit of body, improper treatment, or some other unfortunate accidental circumstance. Such cases are only classed among the inferior degrees of homicide.

The fever in some cases assumes the form of the peculiar disease called *delirium tremens*.

CASE 176.—Mary Wilkie or Finlay was tried at Perth, 14th April 1836, for murder or assault on James Finlay, her husband. On the 23d January, Finlay, a vintner, who walked lame, was the worse of drink; he and his wife quarrelled; she took a poker from his hand and gave him several severe blows with it on the left leg. His servant pulled off the stocking, the leg was bleeding; he afterwards walked to the door of the house, when his wife jammed his leg, and held it fast by closing the door. The leg was soon after found to be broken, and the upper end of the bone protruding. In eight days he was seized with delirium tremens, of which he had two previous attacks, being much addicted to drinking, and died six days after.

On dissection there was a comminuted fracture of the tibia at the upper part, and some parts of it diseased; also a fracture near the head of the fibula.

Professor Syme and Dr Malcom conceived the tibia to have been broken by the blows with the poker; that Finlay then walked to the door, where, partly by the injuries there sustained, or by walking, the fibula was fractured, and the end of tibia protruded.

Two of the surgeons who attended the deceased said there was no ecchymosis, but they evidently did not seem to understand exactly what ecchymosis was, and did not examine for it by dissection;—they judged only by the absence of discoloration. Professor Lizars thought, as there was no ecchymosis, the fracture must have occurred from a fall, and the delirium tremens from the usual stimulus having been removed.

The charge of murder was given up, the assault was proved, and the pannel was sentenced to twelve months imprisonment, (Swinton's Justiciary Reports.)

In all large hospitals, from the great increase in the habitual use of intoxicating liquors which has taken place among the lower orders, we have very frequent opportunities of witnessing injuries of a much less extent than that above described proving fatal by the supervention of delirium tremens. And there can be no doubt of its occurring, from the previous habits of the individual having caused a state of the system which pre-

disposes to it, and without which preparation the disease never occurs. In a majority of cases it is an affection which proves fatal, notwithstanding all that can be done for its alleviation.

When an injury not of itself of a serious or fatal nature, and not inflicted with a murderous intention, only proves so by some latent, unforeseen, or accidental circumstance, the highest crime which can be charged upon it, is casual or accidental homicide, unless there was either recklessness shewn, or an evident intention to inflict some serious bodily harm.

When slight injuries cause death from the existence of some of the peculiarities above mentioned, these would only be considered a mitigation of guilt, when it is obvious that the injury had been inflicted without either murderous intent or of causing serious bodily harm. Where any of these intentions are made out, they would certainly not avail as pleas of exculpation. The case of Captain Moir, which occurred in England in 1830, may be mentioned as an example of this. He shot a man who was trespassing on his grounds, who received the contents of the gun in his thigh, but died afterwards from erysipelas. Captain Moir was condemned and executed.

E. Of previous Injury or Disease a modifying circumstance in Injuries.

This forms a very extensive and important class of cases. A person labouring under the effects of an injury or of some chronic disease, may be killed by a very slight blow, or even a sudden fit of passion. Instances of this kind are numerous.

CASE 177.—The late Dr Hunter of London died from extravasation of blood within the head, the consequence of a dispute he had with some of his medical brethren.

CASE 178.—Two coal-drivers quarrelled. One of them (M'Donald) gave the other a blow on the left breast. This did not make him fall, but he stepped back a little, and then fell forwards on his face, saying, "See how he has struck me." He then gave a few groans and expired. Messrs Brown and Bell found extravasated blood in the ventricles of the brain.

CASE 179.—An industrious man, who had been provoked to an extreme degree by his wife's propensity for gin-drinking, on returning home one night, found his wife in a gin-shop, where she had been drinking and dancing. An altercation ensued, he struck her twice, and carried her home on his shoulders. A short time after this, by the husband's account, she took a fit, on account of which he laid her in bed; and some of her neighbours entering the house, found her to be dead. Mr, now Sir Charles, Bell, was requested to examine her body. On the head there were marks of several bruises. On opening the skull, which was not injured, an extravasation of blood was found at the base of the brain and into the ventricle. This had taken place from the anterior artery of the cerebrum, which was half torn across.

Being asked whether the blows were the cause of this rupture? Mr Bell was of opinion that such a shock was very likely to have caused the rupture in this individual; because a slighter injury would probably have produced a rupture, in consequence of her state of intoxication and the struggle she had with her husband, than would have been required in other circumstances.*

In these cases there had probably existed some previous disease of the arteries of the brain, which had rendered them easily ruptured by a slight exciting cause, increasing the activity of the circulation of the blood.

It is often a very difficult matter, in cases of alleged homicide, to decide what weight should be attached to the exculpatory plea of previous disease or ailment on the part of the deceased; for the symptoms and effects both of the previous disease and of the injury may be similar, so that it may be difficult to say which proved fatal,—as when injuries have been inflicted on the head or chest, in cases of chronic disease of the brain or lungs.

I shall treat of this extensive and important topic by the consideration of the most important questions arising from it.

a. Was the new injury sufficient to cause serious mischief in

* Shaw's Manual of Anatomy.

a healthy person under ordinary circumstances? This question can only be answered by comparing the case under consideration, with the principles deduced from the discussions in the preceding part of this treatise, together with the general medical principles. When an apparently slight injury causes death, by occasioning the rupture of an aneurism or otherwise diseased bloodvessel, or by the rupture of a hernia or diseased bowel, there can be no difficulty in attributing the death of the individual to the unfortunate occurrence even of an injury upon a diseased part.

CASE 180.—J. Donaldson tripped up the heels of David Stobo at Glasgow, April 1835, by which Stobo fell forward upon the street. He rose up, but again fell and very soon died. On inspection, Dr Corkindale found a slight contusion on the forehead above the right eyebrow. The contents of the head and belly were in their natural healthy state. The lungs adhered to the sides of the chest, and the pericardium adhered to the heart. The aorta was dilated near to its origin, into a large aneurismal sac, which, by having recently burst, had discharged a great quantity of blood into the chest, and proved fatal.

CASE 181.—Professor Christison has favoured me with the following case, which he used to mention in his lectures:—
“Two men who had been long on bad terms with each other, met one day accidentally in the street, when one of them, while passing on horseback, struck the other across the shoulders with his whip. The man who received the blow immediately pursued the rider in a tempest of passion; but had scarcely advanced a dozen steps when he dropped down, muttered a few indistinct syllables, and died instantly. Many people witnessed the affair, and it was universally believed that the deceased had been killed outright by the blow. But on a careful examination of the body being made, no outward mark of injury could be seen, and it was subsequently found that an aneurism of the aorta had burst within the chest. (*Chaussier, Consultations Medico-Légales*, p. 11.)”

CASE 182.—Angus Cameron was tried 5th October 1811,

for the homicide of an infirm and deformed lad by a kick on the belly. Here it was proved that the injury would not have proved mortal, if he had not laboured under a rupture at the time, which was unknown to the accused. Cameron was therefore sentenced only to six months' imprisonment.

A similar case occurred in England in 1744. Lydia Alder was tried for the murder of her husband, by having kicked him in the groin. He had an inguinal rupture, and the injury proved fatal. But the verdict was restricted to "Man-slaughter."*

In some cases of trivial injuries, previous chronic diseases have assumed a state of activity, which has soon after proved fatal, so as to simulate death from the injury.

The existence of any such disease which had proved fatal in consequence of the infliction of a trivial injury, would form a valid plea of exculpation where there was no atrocious or murderous *intent*, and arising more from the unfortunate state of the deceased, which was probably unknown to the assailant, than the injury, it could only be considered a case of accidental homicide. But where murderous intent could be established, the degree of guilt would be considered the same as if in the case of a healthy person, even although the deceased had been on deathbed at the time of the injury.

CASE 183.—Robert Ramsay was tried March 1713, for killing an infirm, sickly old man. The pannel beat him violently with a pair of tongs on the head, by which he died in a few hours. It was strongly suspected that death was owing to the previously infirm condition of the deceased. But the circumstances were found relevant to infer the crime of murder.

Whether injuries actually found on persons affected with serious disease, might or might not cause death in a healthy person, is often a very nice question. It is only to be answered by attention to general medical principles and experience.

When the injury is so severe as to have been sufficient to

* Paris and Fonblanque, vol. ii. p. 123.

have proved fatal in a healthy person, without any previous weakness or disease, the existence of previous ailment would not mitigate the nature of the crime ; for the severity of the injury would shew the reckless disregard of life on the part of the prisoner.

b. Whether did the injury or the previous disease occasion death ? In some cases this is a very nice and difficult question to answer ; for the injury and the disease may each produce the same symptoms and appearances, which may be ascribed to either of these causes. Apoplexy with extravasation, for example, may take place from violent passion or intoxication, where there is previous latent disease, and in which case an injury may have been inflicted on the head. In such cases it may be quite impossible to say which of these caused death. I have already mentioned how an extravasation from injury may be distinguished from an extravasation from disease. (See page 53.)

The previous disease and the parts injured may also affect each other sympathetically, so that it may not be easy or possible to say which caused death.

In other cases, the injury might be only one of several circumstances which contributed to the fatal issue. If the disease was the principal cause of death, it would be very difficult to prove that it would not have been fatal but for the adventitious aggravation of subsequent injury, even where malicious intent is made out. There are several cases on record, where women in childbed died from the fever that sudden fright had brought on. But the charge of murder was repelled.—*Hume*.

c. Did the alleged previous disease really pre-exist, or was it the consequence of the injury ? In cases where the injury and the disease affect the same organ, or where the injured and diseased parts are intimately connected, as the skull and brain,—the windpipe and lungs,—or the parietes of the chest and the lungs, this question will not be easily answered. Fatal inflammatory action of the brain or lungs may, in these cases, have

been going on for a considerable time, though unobserved previous to the injury which may have been received.

A case is mentioned by Bohn, where a man in a quarrel received some blows on the chest. After a short time he was seized with hæmoptysis, severe pain in the sides, delirium, convulsions, and died. On dissection, the lungs and pleura adhered, but the former were filled with thick pus. If this diseased state existed previously, it certainly would soon have proved fatal without the blows. Here the previous history is of importance, as also comparing the interval between the injury and death, with the morbid appearances, and considering whether or not they could have taken place during that interval.

I have been favoured with the following case, with his remarks upon it, by Professor Christison.

CASE 184.—“David Kennoway, tried for parricide in the High Court of Justiciary in December 1825. One Sunday evening, Kennoway's sister left him at home in a state of furious intoxication, quarrelling and struggling with his father, an old man of seventy. On leaving the house she went down stairs to a neighbour's, where she heard the noise of the two scuffling above, and soon afterwards the prisoner followed her down stairs, and went away. She immediately returned to the room where her father was, and there, about seven minutes after she had seen him sitting in a corner reading his Bible, and apparently in good health, she found him stretched dead on the floor, with a slight wound on the nose, and a severer one on the forehead. When the body was opened, there was found half a pint of red serosity in the ventricles of the brain, but no fracture of the skull, no extravasation of blood beneath it, no laceration of the brain. There was also discovered a considerable effusion of reddish serum in each pleural sac, but no other morbid appearance in the chest or elsewhere. The quantity of the effusion was not accurately ascertained.

“If the blow caused this man's death, it is impossible to see in what way it could have acted, except by causing violent concussion. With this supposition, however, the state of the countenance was incompatible; it was very black, while in

sudden death from concussion it is pale. It was quite plain, at all events, that the blow would not have caused the serous effusion; so great an effusion would not take place in seven minutes; neither am I aware that immediate serous effusion has ever been observed in the ventricles of the brain as the result of an external injury. From what, therefore, did this appearance arise? Was it a pseudo-morbid phenomenon? Did it follow death? We shall presently find that so great a quantity as eight ounces cannot be so effused. It must have existed there before death, and I can see no satisfactory way of explaining the case, except by supposing that the man had a latent hydrocephalic effusion, which proved suddenly fatal by the shock of the blow, or his struggles, or his violent passion. At the time this case occurred to me, I was not aware of any case being recorded of sudden death from absolutely latent hydrocephalus. But I was at no loss to conceive such a case quite possible, because *Pyl*, in his *Memoirs*, has given a remarkable instance where the symptoms were inconsiderable, and very much disguised, and where the individual was able to go about till very near death. A young woman, who had complained for four days of some headach and occasional vomiting, but was able to go about, was suddenly seized with rattling in the throat, and died unexpectedly and in full possession of her senses. The case having become the subject of a medico-legal examination, the body was examined, and there was found in the ventricles of the brain three ounces of serosity, and a watery vesicle. (*Pyl's Aufsätze und Beobachtungen*, &c. ii. 30.) Since then various other cases, more or less parallel, have come under my notice in the course of reading. *Dr Abercrombie* has mentioned a case very parallel to that of *Kennoway*, except that the effusion was external to the brain. (*Edin. Med. and Surg. Journal*, xiv. 575.) *Morgagni* has described a case of fatal pneumonia, where no less than eight ounces of serosity were found in the ventricles of the brain after death, without any corresponding symptoms during life, a case, therefore, of true latent hydrocephalus. (*De Sedibus*, &c..) Similar cases are described by *Dr Heberden*, and by *Dr Burrows* in his work on *Insanity*. It appears to me, therefore, that hydrocephalus may

certainly exist as a latent disease, and consequently become, like other latent diseases affecting important organs, the cause of sudden, nay of instant death.

“In the case of Kennoway, the surgeons who examined the body attempted to get rid of all the difficulties adverted to above, by ascribing the effusion to the blows, and death to the effusion. But this opinion is manifestly at variance with sound pathology.” Kennoway was convicted of culpable homicide, and transported for life.

CASE 185.—Along with Mr Black of the Police Establishment, on the 5th January 1832, I inspected the body of Mrs M. This woman had been much addicted to excessive intoxication, for which she had sold and pawned every article in the house, and was rarely a day sober. It was alleged that her husband had inflicted a severe blow on the back of her chest with a butcher's steel, which hangs by a leather belt, on a Sunday evening, in consequence of which she died on the following Wednesday morning, having thereby lived only two days and a half after the injury.

There was no mark of external injury on any part of the body; but we found the posterior and inferior parts of both lungs consolidated and coated with recent inflammatory effusion. Only about a third of the lungs, at their anterior and superior parts, were capable of floating in water. This consolidation of the lungs did not consist of congestion of blood, or simple hepatization, but consisted of a deposition of solid whitish-grey matter, such as is frequently seen as the result of repeated attacks of inflammation and chronic disease of the lungs.

The liver filled the greater part of the abdominal cavity, was of a cream colour, and very soft and friable.

In this case the state of the liver confirmed the drunken habits of the deceased. Death had been caused by disease of lungs; but neither the diseased state of the lungs, nor other appearances, afforded any confirmation of death by violence. For this state of the lungs was not such as any injury could have occasioned in two and a-half days, even favoured by the most drunken habits, with the exception of the pleuritic inflam-

mation, which might have been excited either by cold or by other injury affecting previously diseased lungs.

CASE 186.—In April 1837, Dr Christison and I inspected the body of a stout-looking young woman, a servant, aged 20, who died ten days after having received an injury by having had her throat (she said) forcibly compressed by the fingers of her master, in the course of some quarrel which had occurred. After this happened, the girl wished to continue and go on with her work, but her master and mistress thought she had conducted herself so improperly, that they insisted on her leaving their house. Her voice was good, and she made no particular complaint of her throat. She left her service after breakfast, and went home to her father's house, which was situated at a distance of about fourteen miles from where she served. This journey she accomplished partly by walking and partly by the railway, in the course of which she had been both overheated and chilled. When she got home in the evening, she complained of soreness of her throat, went to bed, became feverish, and was attended by a respectable practitioner in the neighbourhood. The right tonsil suppurated and discharged matter. On the 8th day she complained of urgent symptoms of pleurisy, accompanied with fever of a typhoid character, and this, together with the inflammation of her throat, proved fatal on the tenth day after the alleged injury.

It may be stated that, two or three months before this, she had been affected with a severe attack of influenza, accompanied with symptoms of affection of the lungs.

Upon dissection, there were no marks of injury on any part of the body, but we found indications of recent inflammation of the throat, consisting of redness and thickening of the mucous membrane, and an abscess in the right tonsil, which had burst. The pleura of the ribs and lungs of both sides were extensively affected with recent acute inflammation, and coated with lymph. The pleural cavities also contained a considerable quantity of fluid inflammatory effusion. There were a considerable number of abscesses in the substance of the lungs, having the appearance of large tubercles in a state of suppuration. This last affection seemed to us to have existed before the al-

leged injury, and had probably taken place at the attack of influenza.

In this case we considered death to have been caused by the inflammation of the pleura and lungs. This was probably not connected with the injury or inflammation of the throat, unless remotely by the exposure to cold and fatigue, the alleged injury of the throat, and the consequent state of febrile excitement, had occasioned operating on lungs in a previously diseased state.

All doubtful pleas are received in favour of the pannel, to avoid the possibility of doing him injustice. But it is no less necessary that the infirm and diseased should be protected by the law, as well as others.

F. Of subsequent Injury or Disease modifying Injuries.

Diseases supervening upon slight injuries from the previous state of the constitution, have been already treated of.

In all charges of homicide, it must be shewn that the person died of the harm or mischief done by the accused. Where death does not take place soon after the injury, but only after the lapse of some time, opportunity is given for the operation of other causes which may aggravate the case, or have the effect to render it fatal. If the individual so far recovers from the injury that he is able to go abroad and engage in his ordinary occupation, but afterwards dies, whether of the direct or indirect effects of the injury, no matter, even though from consumption in consequence of confinement, the law is extremely jealous of allowing a charge of murder being sustained. For, say the chargers, death must here be presumed to be owing to some other cause. In the civil question of deathbed, these two diseases would be held quite distinct; much more then should they be so when a man is tried for his life. (Hume, p. 176.)

But there are many cases in which the individual may get so far well as to go about, and yet he may be again taken seriously ill from the effects of the injury and die. This often happens in injuries of the head, and in other cases also, as has

been already shewn. In many such cases, however, the second and fatal attack may be traced to irregularity, or want of proper care, on the part of the deceased, as will afterwards be mentioned.

The persons injured, whether mortally or not, may, by the hands of another, receive a second injury, and be killed thereby. The person inflicting the second injury, of which the person dies, is alone responsible. (Hume p. 176.)

CASE 187.—W. Williams, at Glasgow, March 1833, received an injury which brought on fever. He then received some severe blows, which caused gangrene of the fingers and arm, fever, delirium, and death.

If a person of weakly habit receives a wound, of which he after a time gets well, but owing to long confinement, he takes consumption or some other lingering disease, of which he dies, the injury as the cause of death is considered too remote an inference to serve as a ground of punishment.

Cases of wounds may also be modified by the supervention of other diseases in their progress, as by Fever,—Erysipelas,—Inflammation,—Gangrene,—Hæmorrhage, or Tetanus. When any of these affect a wounded person, if the wound is of itself severe and dangerous, the accused will be held responsible.

CASE 188.—Janet M'Laren (a deaf and dumb girl) received from another woman an injury upon the head, in July 1823. For this she was admitted into the Infirmary of Glasgow. It was found that the scalp was wounded and the skull fractured and depressed; but there was no symptoms of the brain being affected. Inflammatory fever supervened; and, several weeks after the injury of the head, violent inflammation of the chest came on, and she died in two days after.

In the chest there were found 3 lbs. of serous effusion mixed with flakes of lymph. The right lung adhered to the walls of the chest, and formed an abscess. There was also purulent matter in the substance of the lung.

In this case, the medical inspectors were of opinion that, the

diseased states of the head and chest, were each sufficient to have caused death separately ; but that of the chest appeared to them to be the immediate cause of death, by the inflammation of the head being transferred to the chest.

If, therefore, as in this case, the injury of the head was of a mortal nature, and had indirectly caused the inflammation of the lungs, the law could not, without much difficulty, pass from holding the inflictor of the injury of the head responsible for it.

But if the wound is only slight, and had been inflicted without murderous intent, the inflictor cannot be held responsible on a capital charge.

Of these natural diseases which may attack wounded persons, fever and erysipelas form strong pleas of exculpation, and give rise to several nice medico-legal questions. Thus, if fever comes on, it will not be easy to distinguish between fever as the consequence of the injury, and common continued fever, they so much resemble each other. If, however, in such cases lymph or pus is found effused on the membranes of the brain, the fever has most probably been the consequence of the injury ; for this often happens in cases of injury of the head, but very rarely in common fever. When erysipelas is caused by a wound, it generally begins around the wound. Attention to these circumstances, together with the prevalence or non-prevalence of these diseases at the time, will often assist very much in drawing an accurate conclusion, as to whether they have been caused by the injury or not.

Fever with coma in a case of injury of the head,—inflammation of the lungs with a wound of the chest,—spontaneous rupture of an intestine where a blow had been inflicted, are cases which may be attended with much difficulty. Where difficulty and uncertainty occur, the law and humanity require that the leaning should be to the side of the accused, to avoid the possibility of his being wrongfully condemned.

If the disease supervening upon an injury, is unconnected with it, and of a different nature from those above mentioned, being of a specific nature, as bilious fever, plague, small-pox, or cholera; and, if the injury were not of a mortal nature, there can

be no difficulty in ascribing the death to the disease, not to the injury. For, of the two, the ordinary course of the disease may be fatal, while that of the injury is to proceed to a favourable termination. Erysipelas, gangrene, and hæmorrhage, taking place after a wound, may be either owing to constitutional peculiarity or improper treatment. None of them can be said to be common occurrences in such cases. They will be more fully considered under *Malum Regimen*.

The occurrence of tetanus after a slight wound, forms a puzzling case. For this disease is known in some countries to take place spontaneously, from exposure to cold and moisture without any wound.

Whether to ascribe tetanus to the wound or improper exposure, must be determined by attention to the particulars of the case under investigation. If, as in Clark's case (p. 208), there was no exposure before the tetanus came on, it must be ascribed to the wound.

But whether tetanus should be thought to arise from a wound or the operation of other causes, if the wound is slight and there was no murderous intent, it can only be considered as the accidental occurrence of an unfortunate circumstance, for which the person who inflicted the wound cannot be held responsible. If, on the other hand, it has been evidently occasioned by a severe, dangerous, or maliciously inflicted wound, it certainly would not avail the pannel much, that locked-jaw had accelerated the fate of the injured man.

Whether the disease subsequent to an injury of which the patient dies, is a consequence of the injury, or is unconnected with it, may, in some cases, form a very nice question.

G. *Of Misgovernment on the part of a wounded person or his medical attendant, as a circumstance altering the Medico-legal character of an injury. Malum Regimen.*

This forms one of the most difficult and important causes of the modification of injuries. The circumstances which may operate in this way, have different effects in different individuals, and are sometimes not easily defined. So that it is often

very difficult to say what of the fatal event is to be ascribed to the injury, and what to the conduct of the individual,—his own want of care, or to the inattention or improper treatment on the part of his medical attendant. It forms in many cases a very strong plea of exculpation. Indeed, wherever there is doubt or difficulty in the opinions of the medical jurists consulted, the case becomes so much more favourable for the prisoner, that conviction rarely follows.

I shall consider this subject under three heads,—1st, Was the want of assistance or attendance accidental and inevitable, or was it intentional? 2d, Irregularities or misgovernment on the part of the patient. 3d, Misgovernment on the part of the medical attendant.

1st, The want of assistance or proper medical attendance on the receipt of an injury, may have been accidental, or it may have been unavoidable; in which cases the responsibility of the accused is not lessened. “If an assault,” says Baron Hume, “is made with a knife, or other cutting weapon, whereby some artery or large bloodvessel is divided, and the person bleeds to death upon the spot; it is no answer to the charge of homicide, that of itself this wound was not necessarily mortal, and that, with the immediate assistance of a surgeon, if one could have been procured, the effusion of blood might have been stopped and the man’s life preserved. Or put the case, that a surgeon is procured, who stanches the blood for the time, but after he is gone the wound breaks out afresh, and the man dies before assistance can again be had; this incident is also at the hazard of the pannel. Or, what if a person receive a gunshot wound at some remote place in the country, where no surgeon skilled in the treatment of such wounds is to be had, and of this wound he dies, notwithstanding the best care of the practitioners in that quarter such as they are? Or, let us imagine that a person has been robbed, and unmercifully beaten in the night, in hard weather and in a solitary place, so that lying exposed to the cold till day, he dies upon the spot, or of the consequences shortly after. In all these and the like cases, there is an undoubted homicide. It is still true, that of this very injury done him by the pannel, the man dies. It has its natural course

and issue, in the circumstances of the situation, such as they happened to be where the assailant did the deed, and which the sufferer has done nothing to aggravate, and every thing in his power to relieve. If those circumstances have been unfavourable, this he must answer and run the risk of, whose wilful deed, then and there done, has made them of moment to the loss or preservation of the life of a fellow-creature. Besides, the uncertainty must be considered which attends all cases of outrageous injury, whether by any course of treatment the life of the sufferer could have been saved. That he was actually killed by this violence is proved, and that he would have survived in more favourable circumstances is matter of conjecture only, or probability at the best." P. 178. These principles Baron Hume illustrates by the following case: David Edgar, was tried as one of a party of smugglers who fired at William Paisley, an Excise-officer, in the discharge of his duty, by which he was wounded with small shot or slugs in the leg or knee. Paisley was carried to the nearest village, and was there attended by the best surgeon that could be had, and not alleged to have been deficient in attention. A great collection of matter formed in the leg, fever came on, and he died in three weeks. It was argued for the prisoner, that the wound was not of a mortal nature, and might have got well by skilful treatment. But he could not prove that death ensued from *malum regimen*, and not from the wound. Edgar was tried upon the charge, but was not convicted, as it could not be proved that he was the person who wounded Paisley.

If, however, the neglect to call assistance is intentional, from carelessness, or if a quack is employed when a regular practitioner might have been had, and the person dies, the pannel could not be considered responsible for the whole damage. This, therefore, would form a valid plea of exculpation, or at least of mitigation of punishment.

2d, Irregularities or misgovernment on the part of the patient, form likewise a reasonable and valid ground of the mitigation of a crime. This fault on the part of the patient may arise from several causes,—negligence or delay on the part of his attendants, particularly in putting into operation the pre-

scription of his medical attendant,—his refusal to use the proper means for his recovery,—or his exposing himself improperly to cold, fatigue, a fresh injury, or to such causes as may induce inflammation and fever.

A very common cause of the aggravation of an injury, particularly among the lower orders, is *intemperance*. This is so common, leads to so much difficulty, and is of such importance, that I shall illustrate it a little more fully.

It is very common for persons of intemperate habits to engage in brawls and receive injuries, of which, after a shorter or longer interval, they die. Whether has the drunkenness, the injury, or the two conjoined been the cause of death? Here the principles already laid down as to the nature of the wound, and the possibility of its having caused death, must be kept in view. If the wound has only proved fatal by the improper conduct of the patient, he may be said, as he would be held in law, to have killed himself.

CASE 189.—Thomas Turner, a publican, aged 38, was a man very much addicted to drinking spirits, and lived very unhappily with his wife. They frequently quarrelled and came to blows. A man named Dods frequently visited the house, and was suspected by Turner of being too intimate with his wife. Consequently, Turner felt an ill will and jealousy towards Dods, when he heard of his being in the house.

On the evening of Saturday, 15th March 1834, Dods visited the house, and took a dram in company with Mrs Turner. Turner himself was lying in bed in the kitchen. He was informed, however, of Dods being in the house, by one of the servants, upon which he gave expression to some abusive epithets against Dods. These were repeated to Dods, who in return went to Turner and gave him abusive language, as also a slight blow on the breast with the back of his hand, when lying in bed. This so roused Turner that he got up out of bed, laid hold of a wooden roller, and was going to strike Dods with it, had not Mrs Turner interposed and prevented him. Dods then gave Turner a push, which made him fall backwards upon a plate warming fire-screen, which stood before the fire. By

this fall Turner got a pretty severe blow towards the back of the right side of his chest, and several cuts on the head by an earthenware dish, which fell at the time from the top of the screen, and broke into fragments.

Turner returned to bed, and next day (Sunday) drank a considerable quantity of whisky. In the evening he was seized with a great shivering, complained much of pain in his side and breast, and felt himself very unwell. On the following day (Monday) the symptoms continued with increased severity, together with a troublesome cough and breathlessness. Notwithstanding this, however, he refused to have any medical advice, said he would *doctor* himself, and continued his libations of whisky.* The pain in the side became so severe, that warm fomentations were applied most of the day. On the next day (Tuesday, 18th) he continued to become worse; between two and three p. m. he was seen and bled by a surgeon. This afforded him no relief, and he died about seven o'clock in the evening.

For about twelve months previous to his death, Turner had been affected with general bad health and cough, attended with some pain of side. For these complaints he was a patient in the Royal Infirmary in October 1833.

Sectio Cadaveris.—March 20, Mr Syme and I inspected his body by order of the Sheriff.

Externally.—We found three slight marks of injury on the head. One of them a cut on the upper part of the left side, an inch in length, and the depth of the bone. Several slight scratches and contusions on the forehead and face. An ecchymosed mark of contusion on the right side of the chest, at the middle of the eighth rib. A small portion of the skin of both knees abraded.

Internally.—Considerable serous effusion between the membranes of the brain, such as often exists in drunkards. We found about four ounces of sero-sanguineous fluid effused into the right side of the chest; the lungs adhering to the parietes

* His servant Margaret Gordon said he drank three gills of whisky on the Sunday, and more than two gills on the Monday. His other servant had given him several glasses also.

at the lateral and middle part of right side, by firm old membranous adhesions; the lobes of the lung on the right side were adhering to each other by membranous adhesions of old appearance. The lower and middle lobes were much condensed, hepatised and fleshy, of a deep red colour, and having the air-cells obliterated.

The lungs of the left side of the chest, heart, &c. were quite healthy.

The liver was enlarged, hardened, uniform, but somewhat irregular on its surface, and was of a uniform very pale pink colour, both externally and internally.

The kidneys were enlarged,—the right was much encysted.

In this case, it seemed to me impossible to disjoin the injury on the right side of the chest, from the inflammation of the lungs which proved fatal.

With the exception of a chronic cough, and other slight symptoms of general impaired health, Turner was quite well on the Saturday before receiving the injury; but after it, he was unable to get out of bed. The shivering, pain, the increased troublesome cough, and difficulty of breathing, which came on upon the Sunday evening, mark the accession of a new and distinct attack of inflammation of the lungs of the right side; the appearances resulting from which were obvious on dissection. The other injuries, as well as that on the side of the chest, did not appear to be of a serious or mortal character, under ordinary circumstances, and under proper treatment. But in an individual so much given to intoxication,—of impaired constitution,—affected with chronic inflammation of the same part of the lungs where he received the blow, indulging freely in drinking whisky,—and refusing to avail himself of proper medical assistance, the blow received on the side had given rise to the acute inflammation of the lungs, which was followed by a fatal termination, or aggravated his former illness so much as to render it fatal. It was no doubt very unfortunate for the accused that he was the means of causing such a blow on so unfortunate a subject. But, as the injuries were not of themselves of a mortal nature, had Turner not very much

misguided himself, very probably he would not have died in consequence of their effects. As there was also some provocation given by Turner, and no apparent intention on the part of Dods to do Turner any serious bodily hurt (for it was not the blow or push, but the somewhat accidental fall succeeding it, which caused the injury), the case does not wear a very serious aspect. Even though it may be classed as one of *culpable homicide*, the extenuating circumstances for the accused are very strong.

The charge against Dods was not persisted in by the public prosecutor.

CASE 190.—“In this country,” says Dr Christison, “the plea of *Malum Regimen* is not very easily admitted in cases of homicide, but if clearly made out, its effect in exculpating the prisoner is freely admitted. An interesting case, where the prisoner got off under such a plea, came under my notice here in 1823. A prostitute of the name of Macdonald, in a state of drunken wantonness and fury, struck a brothelkeeper with a smoothing-iron, and inflicted a denuding wound of the skull. The wound never healed; the woman constantly complained of headach; and eight weeks after the accident she was attacked with erysipelas of the head and face, which ended fatally in ten days. The usual effects of erysipelas were found on the body; and the seat of the wound was occupied by an indolent ulcer, from the bottom of which a small hole proceeded inwards and perforated the bone. But this woman, after meeting with the injury, kept up an old custom of getting often intoxicated; and, on one occasion, a few days before the erysipelas began, she actually danced with great spirit and got dead drunk at a ball. Here, even supposing the erysipelas had begun around the wound, which was not proved, the woman nevertheless led, in every particular, the very kind of life which was calculated to induce serious consequences. The medical witnesses, therefore, declared that the death of the deceased could not with any certainty be ascribed to the wound. The prosecutor, therefore, departed from the charge of murder; and the prisoner was convicted of the assault.”

If the appearances after death are such as might either have

arisen from a fit of intoxication or an injury, as in the case of M'Cormack (p. 39), a difficulty occurs which cannot be completely solved by the medical examination alone. In such cases our opinion should always lean towards the accused. For the habits of intoxication, and more especially after an injury, are so apt to induce fatal disease, that we should, as in other cases I have mentioned, avoid the possibility of wrongfully convicting the accused. Beck mentions the case of an individual who received an injury on the head; he walked and spoke after it, and drank a part of a pint of spirits. He was shortly seized with insensibility and died thirty-eight hours after the affray. On dissection, the parts of the head were natural, but there was some inflammation at stomach. The opinion given by the medical gentlemen who examined the body was, that he had not died from the injury of the head.

There is yet another reasonable and valid ground of exculpation connected with the conduct of the patient; namely, in consequence of his concealing any circumstance which might have been important in the proper treatment of the case. Thus, a female received a wound of the scalp; erysipelas came on,—she called a medical attendant, who prescribed for her as if her case had been one of spontaneous erysipelas; she died. She concealed the injury she had received as the cause of the erysipelas; but if her medical attendant had been informed of the wound, and treated the case by incisions, &c. she might probably have recovered.

3d. Misgovernment on the part of the medical attendant, whether from ignorance, inattention, or mismanagement, is considered a valid plea of exculpation. And this, even although the wound was of a *dangerous* nature; but not if the wound was of necessity *mortal*. By his ignorance, the patient may be allowed to go about when he should have remained quiet,—indulge in an improper regimen,—or have improper applications made to his wound. By his inattention and neglect, hæmorrhage may not be suppressed,—fever may not be subdued,—collections of matter may not be evacuated (which may burst internally), operations by which he might have been saved may

not have been performed; and by his mismanagement such remedies, regimen, operations, and general treatment, may have been employed as have occasioned a fatal result.

Of these different pleas, proof of *neglect* on the part of the surgeon, forms a better and stronger one, than either *ignorance* or *mismanagement*. For, regarding the two latter, there is generally room for considerable difference of opinion among professional men, which prevents their being easily established. There is a case mentioned by Burnet on Crimes, in which this plea was sustained, where the medical attendant, in place of going himself, sent an apprentice. But no plea of *malum regimen* would be availing if the wound was of a mortal nature; and more especially, if inflicted with a lethal weapon recklessly, or with a murderous intent.

I will illustrate this subject by commenting more fully on two cases which have been already alluded to in a preceding chapter, (p. 63).

CASE 191.— — Houston was tried at Edinburgh, November 1833, for the murder of Daniel Fitzpatrick, æt. 3, by having recklessly thrown a stone, weighing nearly one pound and a half, among some boys on the 9th June 1833, whereby he received a blow which was intended for another, and died on the 18th of July following. The boy having received a contused and lacerated wound upon the head, was immediately carried to the Royal Infirmary, where he was seen by Mr Liston. But as the parents would neither allow Mr Liston to examine properly the nature of the wound, nor permit the child to remain in the house, he was taken home and subsequently attended by a pupil of Mr Liston's. The wound was situated at the upper and back part of the right parietal bone. This bone was fractured, and a portion of the brain protruded. Considerable fever and inflammation of the wound took place; but this abated so much that, on the fifth day after the injury, he was able to go about, and continued apparently to recover till the 14th of July. He was then seized with fever, and confined to bed. Drowsiness, pain of head, and dilatation of the pupils came on, accompanied with some palsy of the left side. He

afterwards became delirious and comatose, and died on the morning of the 18th July.

This child was not seen by any other medical man during his illness, except Mr Liston's pupil. After his death his body was inspected by Dr John Campbell, Mr Liston's pupil, and myself, at the request of the Sheriff. Mr Liston happened to be absent from town.

There was no injury or disease of any other part of the body, except the wound upon the head. This was for the most part cicatrized. When the scalp was removed, the right parietal bone was found to have been fractured at the situation of the wound; and the fractured portion, in size nearly an inch in diameter, was depressed to the depth of about a quarter of an inch upon the brain. The dura mater adhered to the bone at the part. This membrane had been wounded, and the opening through it led to an abscess in the substance of the brain, which contained about three ounces of purulent matter. The cerebral matter around the abscess was softened, and in some parts very red from increased vascularity. The whole contents of the right side of the cranium were more red and vascular than the left, and there was lymph effused on the membranes of the brain at the seat of the wound.

In this case the boy may be said to have recovered from the primary effects of the injury, and death had obviously been caused by inflammation and abscess of the brain, induced by the subsequent irritation from the depressed portion of the skull upon the brain, which I have shewn to be a very common result of such an injury. (See Chap. V. Sect. C.) It is also obvious that inflammation must have been going on for a considerable length of time before death.

Now, it is proper to state, that, according to the opinions of the highest professional authorities, which have formed a commonly established rule upon the subject, whenever a compound depressed fracture of the skull occurs, the depressed portions of bone should be immediately removed from the brain, to avert the irritation and inflammation which are too certain to occur. If this is not done at the time, it has generally been found too late, after symptoms of inflammation have come on, to save the

life of the patient. In support of this principle, I may refer to the opinions of some of the highest authorities on the subject.

“ If the fracture,” says Sir Astley Cooper, “ be compound, the treatment must be very different, because a compound fracture is followed very generally by inflammation of the brain, and it will be of no use to trephine, when inflammation is once formed. It might be thought that it would be time enough to perform this operation when inflammation had appeared ; but this is not the case, for if inflammation comes on, the patient will die whether you trephine or not, and you will be so far from arresting its fatal progress by trephining, that the operation will add to the danger of the inflammation. When inflammation of the dura mater and membranes of the brain has been excited by the depression of the bone, you cannot retard the progress to death by performing the operation.”

This principle Sir Astley illustrates by several very striking cases of death, where the practice alluded to was not adopted, and, of recovery where it was carried into effect.

The same principle is stated and illustrated by Mr Abernethy,* by Mr John and Sir Charles Bell,† by Mr Pott,‡ by Sir B. Brodie,§ by Mr Liston,|| and by Mr Syme.¶

Such being the practice which should have been followed in the treatment of cases like that under consideration, it became an important question whether or not the omission of it should militate in favour of the prisoner.

Having been requested to examine and give my opinion upon the case, by the public prosecutor, I considered it my duty to state to him, with the concurrence of Dr Campbell, the whole circumstances connected with it, in order that no injustice might be done to the prisoner.

I stated that, independent of the fatal injury not having been

* See his *Surgical Works*, vol. ii. p. 28.

† See *Principles of Surgery*, vol. ii. p. 297.

‡ See *Treatise on Fractures*.

§ *Medico-Chir. Transactions*, vol. xiv. p. 402.

|| *Elements of Surgery*, part ii. p. 30.

¶ *Principles of Surgery*, p. 383. ed. 2.

intended to hurt the deceased, the want of the proper treatment which the case required was sufficient to exculpate the prisoner. Whether the fault lay with the parents or the medical attendant, it is not of much consequence to inquire. My representation had the desired effect, and the prisoner was acquitted.

As the child recovered from the primary effects of the injury, it is highly probable that, if the depressed portion of bone which afterwards caused irritation and fatal abscess of the brain had been removed, he would have recovered.

CASE 192.—J. Bell was tried at Edinburgh, November 14. 1836, for the murder of John Kerr, aged 19, by having struck him a severe blow on the forehead with a hoe, while at work in a field, on the 20th of July preceding, whereby he died on the 28th of the same month. Kerr was admitted into the Royal Infirmary here, under the care of Professor Lizars, on the day after the injury, when he was able to walk to his bed, and did not seem to be very ill. The post-mortem examination, at which I was present, was, in absence of Professor Lizars, conducted by Mr Fergusson and Dr W. Home, who drew up the official report on the case.

About an inch above the right orbit, and close to the mesial line, there was a circular “*compound comminuted and depressed fracture of the middle part of the frontal bone* ;” the depression having the appearance of a shallow cup, of about half an inch in depth. The *external* wound of the scalp was like three incisions meeting at one of their extremities ; the pericranium was in a sloughy state ; the wound was in a state of suppuration. *Internally*, there was purulent matter between the broken cranium and dura mater ; some spiculæ of bone attached to the dura mater, several of which had penetrated through it into the brain. There was some purulent matter and lymph below the dura mater, and softening with abscess in the substance of the brain, about an inch deep at the seat of the injury. The medullary substance of the brain was inflamed, and had a yellow appearance to the extent of about an inch and a half around the abscess.

A simple fracture extended from the circular depressed frac-

ture into the orbit. Another about an inch upwards to the crown of the head. No operation had been performed to remove the depressed portions of bone.

This case was very similar to that just detailed. This young man was in good health when he received the injury, and evidently died from inflammation of the brain. When he came to the Infirmary, the symptoms of inflammation of the brain did not seem to have come on ; nevertheless, they were to have been expected with certainty to take place, from the irritation produced by the depressed portions of bone on the membranes and substance of the brain, if allowed to remain so situated. Hence, it might have been fairly argued that these depressed portions of bone should have been immediately elevated and removed from the brain. In such cases, it is too late to attempt this, after symptoms of inflammation or effusion have taken place ; as the danger cannot then be averted. And accordingly, as I have shewn above, it is an established principle in surgery to elevate or remove depressed fragments of bone from the surface of the brain, in all cases of *compound fracture of the skull with depression*, whether symptoms appearing to demand interference have come on or not.

From the above circumstances in this case, if the person accused had not pleaded guilty of culpable homicide, he would probably have been exculpated on the plea of *malum regimen*. There was no effusion of blood within the cranium, and no concussion of the brain, to have proved fatal, hence it might legitimately be inferred, that if the inflammation had been averted by removing the cause of irritation, he very probably would have lived.

Bell was sentenced to seven years' transportation.

H. *Of the Intent of the Inflictor of a Wound, as altering its Medico-legal character.*

According to the modern improved state of our criminal code, the character of, or degree of guilt attaching to, homicide, is estimated very much by the *intent* of the individual who inflicted the fatal wound, or was otherwise the occasion of the

deceased having lost his life. Even doing serious bodily hurt to another with malicious intention, though death does not ensue, now constitutes a capital charge.

“The law,” says Dr J. G. Smith, “looks now to the *intent*; and where there has been a design to kill, or do some grievous bodily harm, the crime is made out though the design may have failed. Here, however, the complexion of the case must be occasionally modified by considerations belonging to the province of the medical practitioner; as in the instance of a man who fractured the skull of a boy committing depredation in his grounds, by a blow with a stick. It was not only proved that the boy was actually guilty of the provocation, and that the man intended no more than chastisement, but that the stick was not of a size from which such mischief could have been anticipated; and moreover, that the skull of the boy was thinner than ordinary.”

By the old statute law of Scotland, there was little distinction made between premeditated murder, culpable homicide, and manslaughter. Hence the judgments pronounced upon all those who had caused the death of another, whether by intention, accident, or even in self-defence, condemned them to an ignominious death upon the scaffold.

I shall just insert one case of this kind, which shews the state of the law at no very distant period. In this case the homicide occurred in self-defence, nevertheless the unfortunate inflictor of the wound was condemned and executed.

CASE 193.—George Cumming, writer in Edinburgh, was tried in 1695, for the murder of Patrick Falconer, a soldier.

Cumming, with three others, was going along the street of Portsburgh, between nine and ten at night, on 5th September. Falconer and two comrades were walking peaceably by him to their quarters. Some of Cumming's party asked the soldiers what o'clock it was. Cumming took offence at their answer, called them offensive names, upon which the soldiers attacked him with their drawn bayonets. In self-defence Cumming drew his sword, and after some skirmishing, stabbed Falconer through the belly, by which he died in twenty-four hours.

Cumming urged the plea of self-defence, but was condemned, executed, and his personal estate forfeited.

The plea of self-defence, in this case, where three armed men attacked one, was certainly a very strong exculpatory circumstance, and would have so modified the degree of guilt in the present state of the law, that a very different and much more equitable judgment would have been pronounced. (Arnott, p. 190.) A man would not now be condemned to capital punishment for defending himself.

When homicide is wilful, and has been committed through malicious purpose, either of killing, or, regardless of life, to do some serious bodily harm, it constitutes the crime of *murder*. In absence of other evidence of the malicious purpose of the accused, the wanton disregard of the life of a fellow-creature is held in law as amounting to that malice which is necessary to constitute this highest species of homicide.

Malice and revenge, rather than human frailty, are likewise presumed, if the accused struck the fatal blow, not in the heat of passion at the moment of provocation, but after an interval when he might have cooled and reflected upon the consequences of his deed. Also, if the instrument and manner of retaliation, even at the instant of provocation, is greatly inadequate to the offence given, and in itself cruel and dangerous. But, on the other hand, the circumstance of the accused having laid aside a lethal weapon, and struck the mortal blows only with his fist or a staff, is highly favourable to him, and would save him from the imputation of the malicious intent which the law requires to constitute murder. Many cases have occurred illustrative of these points (see Hume, Burnet, Alison,) which the medical evidence is often very material in establishing.

These principles have been exemplified in several cases, a few of which I shall mention.

CASE 194.—“ There is no wounding by rule, so as to pay well and spare the life,” as was directed by a father (Brown, 1753,) to his son, who coming up struck the deceased with a stick on the head repeatedly, while the father held him, of

which he died. The father was convicted of murder and condemned. (Burnet.)

CASE 195.—A man named M'Craw was condemned to death at Perth, in April 1806. Having been provoked by some children, he laid hold of one of them, a girl 10 years of age, violently by the private parts, and tore and lacerated the vagina so much that she died from the injury. Here the animus to kill was inferred from the cruel and inhuman nature of the injury. (Alison.)

The case of Thomson and Dobie (No. 164), already detailed, affords another instance in illustration of the reckless conduct of the inflictors of an injury, which proved fatal, constituting murder. In this instance, these men so little intended to commit murder, that, on the day after having inflicted the reckless, cruel, and fatal, injuries on their victim Paterson, they were heard to boast of what they had done as a frolic.

The case of the Duncans, No. 95, p. 105, was somewhat similar.

CASE 196.—John Campbell was tried, 9th November 1836, for the murder of Duncan M'Dougall, by having pulled a rope and canted or upset a stage or scaffold suspended by a ship's side, upon which M'Dougall was standing scraping the vessel. He fell a height of about twelve feet, and got his skull fractured, by which he died next day. Campbell had shewn a dislike and ill-will towards M'Dougall, for having obtained this piece of work, from which Campbell had been discharged. The Judges were of opinion that the charge amounted to murder; but the jury found Campbell guilty only of culpable homicide, and he received sentence of transportation for fourteen years.

In this case there was evidently a reckless disregard of the consequences, if not direct malicious intent.

If there is clearly an intent to kill, or the reckless infliction of a severe injury which proves fatal, even though another and not the person intended should fall a victim, the perpetrator is held equally guilty as if it had taken effect on the person intended. Thus, in the case of the attempted murder of Arch-

bishop Sharp formerly alluded to (p. 205), where the shot took effect in the shoulder and arm of the Bishop of Orkney, by which he died after lingering two years. A charge of murder was not made out in this case, in consequence of the great length of time between the injury and the event ; but, if it had proved fatal sooner, so as to leave no room to doubt that the shot had caused death, the crime would have amounted to murder.

CASE 198.—Peter Robertson, tried April 1818, had thrown a pair of tongs at his servant in a fit of passion, which missed her and killed his own child ; he was found guilty of culpable homicide, on account of the reckless intent indicated by his conduct and the weapon used.

CASE 199.—Andrew Ewart tried at Edinburgh, February 1828, for having shot a companion of his own in Libberton churchyard, whom he mistook for a resurrection man. As this would have been murder as against the resurrectionist, so it was considered against the deceased ; and, being convicted, he had sentence of death, but which was afterwards commuted.

CASE 200.—James Carnegie of Finhaven was tried, July 1728, for the murder of Charles Earl of Strathmore.

Carnegie, the Earl of Strathmore, and several others, dined together at the house of a gentleman on occasion of the funeral of this gentleman's daughter. They afterwards went to a tavern in Forfar, and again drank freely. Mr Lyon of Bridgeston, who was of the party, gave Carnegie insulting language, and threw him into a dirty 'kennel' two feet deep, where, in his drunken condition, he would have died, had not a servant of the Earl's helped him out. Lyon laughed at Carnegie, upon which he drew his sword and made a thrust at Lyon ; the Earl interposed, pushed Lyon aside, and received the fatal wound. The wound inflicted was through the belly, of which the Earl died in forty-nine hours.

It was in this case argued for the prisoner, that, as there was not malice aforethought, he could not be charged for murder, the blow not being intended for the person killed. *2dly*, That such was the provocation, had Lyon been killed, Carnegie

could not have been charged with more than either casual or culpable homicide ; and, therefore, he could not be more guilty in killing the Earl by the thrust intended for Lyon, than in killing Lyon himself.

The law considered the crime the same as if Lyon had been killed ; but on account of the provocation, Carnegie was found not guilty.*

CASE 202.—In the case of Lieutenant George Storey, January 1785, for the murder of William Stewart, surgeon in Paisley, the *Jury*, by the recommendation of the Court, found him not guilty of the murder as libelled, but *of culpable homicide*. This is the first case in which the distinction was made in Scotland.

CASE 203.—Francis Smith was tried for murder at the Old Bailey, 10th January 1810, by shooting Thomas Millwood, supposing him to be a ghost.

For several weeks previous to the fatal event, the inhabitants about Hammersmith had been disturbed by rumours of a ghost ; and several parties of young men were in the habit of going out at night in search of, but could never find, the phantom. About half-past 10 P.M., however, on the night of the 3d, having seen the deceased, whose white clothes, being by trade a bricklayer, corresponded very much with the appearance of the rumoured ghost, the pannel fired and shot him.

The jury returned a verdict of *Manslaughter* ; but the Lord Chief-Justice declared that such a verdict could not be received, and that they must either find a verdict of *Murder*, or acquit the prisoner. They found him guilty of murder, and sentence was passed accordingly.

If homicide is occasioned by an act of itself illegal, though not intended to injure any particular individual, and the injury has not been inflicted directly by the hand of the accused, yet it would be considered murder in the eye of the law. This was exemplified in the case of *Craw*, 1827 (already noticed, p. 79), who loaded and set a spring-gun, by the explosion of which Guthrie was wounded and died. The Court, after very delibe-

* Arnott, p. 199.

rate consideration, held that this amounted to murder. The same is also illustrated in cases of wilful fire-raising; and in the cases of soldiers, who occasion the loss of life by firing upon a mob, or recklessly among other persons, without being justified either on the score of duty or of self-defence.

CASE 204.—John Wilson, a pioneer in 35th regiment, was tried at Lancaster, 17th March 1834, for the murder of Edward Martin, a private in same regiment.

He had come to the barracks in a state of intoxication; he levelled and fired his musket in the direction of a company of soldiers, when one was shot and fell. There was a dust-bing near to the place, where, he said, in his defence, he wished to fire his piece into, and had no intention of hurting any one. The deceased and he were on good terms.

The prisoner was found guilty of manslaughter (culpable homicide), and sentenced to transportation for life.

Homicide arising even from slight injuries, if of themselves illegal and improper acts, though not intended to kill, is considered culpable homicide. This was exemplified in the case of Mason 1674, who, in wrestling, threw down the deceased, by which he injured his temple on the corner of a chest and died. Also, in the case of Thomson and Aberdeen 1769, who, by pulling the deceased from his horse, occasioned a fracture of his skull and death. Also, in the case of Gallachar 1826, who, by throwing his companion to the ground unintentionally, caused his head to strike a sharp stone, by which he died. And likewise in the case of Macdonald, Glasgow 1826, who threw a small stone at the deceased, which, by striking his temple, caused almost immediate death.

The same judgment was pronounced in the case of Philip, Perth, 1818, for administering an excessive quantity of ardent spirits to a boy of ten years of age, by which he died in a few hours. In the case also of a schoolmaster, who killed a boy by severe chastisement, the crime was considered to amount to culpable homicide.

CASE 205.—Robert Carmichael, schoolmaster, was tried in January 1700, for the murder of one of his scholars, a son of Douglas of Dornoch. “It was proved that the boy was in perfect health at two in the afternoon, when he went to school, and that before three he was carried out dead. It was found by the jury that the prisoner did, three times successively, make the deceased be held up, and severely lashed him on the back and hips, and in rage and fury did drag him from his desk, and did beat him with his hand upon the head and back with heavy and sore strokes, and after he was out of his hands he immediately died.” “After the boy’s death, the side of his head was swelled, and there were livid marks on it, and the marks of many stripes on his legs and thighs.” His body was not opened.

Carmichael was convicted of culpable homicide, and subjected to an arbitrary punishment.

The circumstances upon which an opinion regarding the *intent* of one who has been the occasion of another’s death is to be founded, are, in many cases, to be ascertained or decided by attention to the following particulars.

1st, The nature and situation of the wound. When this has been inflicted in a concealed part, as in the vagina or rectum (see cases 94, 95, 96, 97, 164), it is very improbable that it was either an accidental or self-inflicted wound, so that it could only have happened from malicious design by another.

2d, The nature of the weapon employed, and the manner in which death was occasioned.

An injury inflicted by a weapon not considered in common language ‘a lethal weapon,’ as with the fist, may not of itself be dangerous or prove fatal; but if, as has been already shewn in previous chapters, the blow was very severe or frequently repeated, it might occasion death. Hence every weapon which inflicts an injury that proves fatal, is, in the eye of the law, a lethal weapon; so that if such an injury were proved to have been inflicted with malicious design in its legal acceptance, a charge of murder would be sustained. But if no malicious intention is proved, the case would only be considered to belong

to one of the inferior degrees of homicide. See cases 41, 42, 43, and 44, in which from the nature of the injuries it was obvious there was no malicious intention.

If the wound had been inflicted by a lethal weapon, which was not in possession of the deceased, or could not have been so used by him, homicide by the hand of another is to be inferred.

If the examination of the person killed shewed that the wound was not single or accidental, but one inflicted by repeated efforts, or partly in different ways, the inference would be that it must have been inflicted designedly by another. Or, if the wound had been inflicted in a cruel and atrocious manner, as in cases 194 and 165, the same inference is obvious. But, if the injury which proved fatal seemed at first only to be of a trivial nature, the plea of *no malicious intent* would certainly be much strengthened.

3d, Where death has been occasioned by a wound with a knife, an axe, fire-arms, or other such lethal weapon, the intent, to the extent at least of inflicting serious bodily injury, cannot be doubted. But where only one blow, given with a fist or slight walking cane,—a shot from toy fire-arms, or the like, has proved fatal, the presumption is that there was no intention of murder, or even of doing any serious bodily harm, unless malicious intention is strongly made out by other circumstances. If, however, blows with a fist or cane have evidently been repeated, or even if one blow has caused immediate death, and there are other signs of malicious design, as in cases 1, 3, 4, and 12, above mentioned, it would be very difficult to establish accidental or unintentional homicide. In the case of Hamilton, July 1807, where death was caused by blows with the fist, the jury found a verdict of culpable homicide.

These circumstances, by which the *intent* of an injury is often made out, can in many cases only be ascertained or confirmed by the medical jurist; and it is a subject of great importance; for, if an atrocious intent is clearly made out, even the influence of collateral circumstances in assisting to cause death, will have little effect in exculpating the accused.

It is, in many cases, a matter of considerable importance, to ascertain the nature of the weapon by which a wound has been

inflicted, in forming an opinion as to the *intent* of the inflictor. This is sometimes attended with great difficulty. But when it cannot be said positively what the weapon employed was, we are generally able to say from the nature of the wound, what *could*, and what *could not*, have produced it. So that when the medical examiner cannot prove what the weapon used had been, he can, in many cases, demonstrate that the wound could not have happened in the manner alleged by the person accused in his defence. Upon this subject, however, the next chapter will treat more fully.

The direction of a wound sometimes shews the intent of the accused, as in the case of Mr Campbell of Boreland, tried at Perth 1831, for shooting a man who had come to his house at night under suspicious circumstances. Mr C. in his defence stated, that, the ground being rough and slippery, he stumbled, and both barrels of his gun went off by accident. This was rendered probable, or rather was confirmed, by the shot in the body of the deceased slanting upwards. From this circumstance, and there being no evidence of the pannel having fired intentionally, he was acquitted.

The destruction of human life by the rash and reckless administration of dangerous drugs, or by the performance of dangerous and unwarrantable surgical operations, to cure diseases, may be such as to constitute homicide, accompanied with that disregard of life which is considered by the law so highly culpable.

In this age of professional rivalry, when falsehood is so often decked out in the garb of truth, and where undue merit is often attached to what is improperly termed grand surgical operations, it is necessary that the public should be guarded against being deceived by ignorant, rash, avaricious, pretenders, on the one hand, and surgical desperadoes on the other. But this object can only be attained, in this land of liberty, by the punishment of offences when they occur.

By the one class of adventurers, the lives of the lieges are tampered with, and sometimes destroyed, by plasters, pills, and nostrums; by the other, by unprincipled and unwarrantable

operations, quite undeserving the name of surgical. In the one case, gain is the only but avowed object; in the other, ill-earned and unmerited professional reputation (or rather *incising notoriety*), is attempted to be purchased at the expense of the lives of fellow creatures. In the one case, the knave is emboldened by ignorance; in the other, by being under the mask of professional skill.

But is a medical or surgical diploma to be used as a cloak, under which unprincipled professional men are to put in imminent jeopardy or destroy the lives of others with impunity? Is the ignorant quack to be punished for his rash and reckless disregard of human life; and is the same reckless conduct to be palliated in one who holds an evidence that he transgressed through knowledge? Our conclusion rather would be, that the latter is doubly culpable.

These reflections are not called forth from imaginary cases, which may possibly occur. Such cases have actually occurred. A few years ago, prosecutions were carried on against a celebrated quack, and more lately against the venders of deleterious Pills, in consequence of the loss of life occasioned by the reckless administration of their medicines. And, if the practice carried on not very long ago, of rash, cruel, and unprincipled, operation, so ably denounced by Mr Liston,* in alluding to the operations which had been practised for the extirpation of the uterus and ovaries, and which only ended after a considerable sacrifice of human life, were to be repeated, it would certainly become the duty of the legal authorities to make an exemplary exposure of such a system. "The abdomen," says Mr Liston, "has been opened, as already stated, and the result has been such as to render the perpetrator indictable for culpable homicide, and qualify him for such punishment as his rash and reckless conduct richly deserved." "Such doings are not justifiable by any plea, and if repeated, should be punished, not merely by the desecration of all professional men of sound sense and principle, but by the strong arm of the criminal law of the land."

* See his *Elements of Surgery*, vol. iii. pages 53 and 232.

In forming an opinion as to the *intent* of the accused in cases of homicide, there are several other circumstances to be taken into account, such as the general character, temper, and habits both of the deceased and the prisoner,—their relation to each other,—their relative ages,—their relative strength,—and the provocation, by expressions or otherwise, which may have occurred. But as these are connected more with the general than with the medical evidence, and are more for the consideration of the jury than of the medical jurist, it is unnecessary here to make any farther remarks upon them.

CHAPTER X.

OF THE MEDICO-LEGAL EXAMINATION OF WOUNDS.

Preliminary Remarks.

WE are now to consider the various circumstances of importance which demand attention, in the medico-legal examination of wounds in dead bodies, where external violence is supposed to have proved fatal; reserving for a subsequent chapter the general instructions to be kept in view, in conducting all medico-legal investigations.

In the present chapter, I propose to treat of the medico-legal examination of wounds, as relating to their nature, situation, and extent, together with the probable manner, force, and weapons, by which they have been inflicted. The remarks upon these subjects will be followed by the consideration of the question, as to whether death by violence has been the result of accident, suicide, or homicide.

SECTION I.

Of the Nature, Situation, Direction, and Extent of Wounds in Medico-legal cases.

According to the medico-legal definition given to *wounds* in a preceding chapter, all kinds of injury are included under this denomination. (See pp. 18 and 197).

Wounds, therefore, are of different kinds, as contused, incised, lacerated, &c.; and they are also different in their nature, as slight, severe, dangerous, or mortal. Hence,

In the medico-legal examination of a wound, it is necessary, *first*, To ascertain and mark carefully what is the kind of wound which exists; whether it is a contused, incised, lacerated, or other wound, according to the definitions formerly stated. A contusion without breach of surface, being known by discoloration of the part, consisting of lividity with swelling and extravasation of blood, which is circumscribed and clotted; a state which may continue for several weeks after the receipt of the injury. If there is a breach of surface, mark whether it is an incised, contused, or lacerated wound. When recent, clots of blood adhere to it; when of longer standing, it may be in a state of ulceration, as is known by a granulated appearance, or from lymph or pus adhering to it; when it is gangrenous, this state is known by the peculiar putrid odour which it emits. Ascertain whether or not the wound bled much; if it has, examine the state of the blood, to know if it had been poured out during life, and coagulated after its effusion; or had escaped after death, and not coagulated farther. It is necessary, also, to examine the state of the neighbouring bloodvessels, as to their containing blood, or being empty.

By the consideration of these particulars, we have certain indications of the presence of the wound during life; for the effusion of blood, ecchymosis, and signs of reaction or inflammation, are vital processes, and could not have taken place after death. If, on the other hand, all these phenomena are wanting, and there is no appearance of elasticity about the lips of the wound, or of any clotted blood; and, if blood effused from it is dark coloured, viscid, or grumous, and has obviously escaped from the division of some large vein in the vicinity of the wound, there is much reason to apprehend that the wound had been made after death.

Secondly, If any weapon is found, it should be compared with the external wound; if any foreign body is found in the wound, it ought to be preserved.

Thirdly, The length, breadth, and depth of the wound are to be carefully examined. In doing this, care must be taken not to destroy the external or other parts of the wound, by which its form, size, nature, and extent, would either be so al-

tered or confounded with the neighbouring parts, that they could not afterwards be appealed to, and their nature demonstrated to others. In dissection, therefore, the external wound should be kept entire.

In many important cases I have had occasion to examine, this was found to be of great importance; as in the cases of Pollock (No. 94), Calderhead (No. 95), Gow (No. 89), Heatherington (No. 93), Fitzpatrick (No. 36), and others. On the other hand, the wounded or diseased parts not having been preserved, has, in many cases, completely prevented the true nature of the cases from being afterwards determined; as in the case of Reid (No. 51). Attention to this circumstance is the more necessary, when the medical inspector is not much experienced in such investigations; and consequently, where others may be afterwards consulted for an opinion upon the case.

The external wound is to be carefully compared with the internal injury, whether of bloodvessels, nerves, bone, or viscera. Great attention is also necessary to ascertain precisely the situation, extent, and nature of internal injuries, and state of the parts connected with them; in order to compare the injury with the previous symptoms, and be able to determine whether death had been occasioned by the injury, or had taken place from some other cause.

Fractures of the bones and the parts surrounding them, require careful examination, in order to determine whether they had been produced before or after death; if before death, ascertain whether they had been recent, or of long standing, which is to be determined by the progress they have made in the processes of union, exfoliation, or ulceration.

Burns require to be carefully examined as to their degree, situation, and extent; also as to their state of progress; whether or not reaction had taken place; and whether they are in a state of inflammation, of healing, suppuration, or sloughing.

Fourthly, The situation and direction of wounds demand attention, being often of great importance in affording evidence of the *intent* of the persons who inflicted them, to which I formerly alluded. These circumstances may also be of material consequence, in corroborating the general evidence, as to the

manner in which the wound had been inflicted, as well as to the relative position of the individuals concerned.

The situation and direction of wounds are also of importance, in ascertaining whether the fatal wound was inflicted by another or by the deceased individual himself. In forming an opinion upon this subject, attention must be paid to the relative heights of the deceased, and the individual suspected of having inflicted the injury, not only when standing, but also when one is seated on the ground ; likewise to the entrance and exit of the inflicting weapon or shot. This last circumstance may generally be ascertained by attention to the following particulars. In wounds caused by a sword or bayonet, the exit wound is smaller and more ragged than the entrance wound ; and the lips of the entrance wound will be found projecting, while those of the exit wound seem depressed. But the reverse of this is to be found in cases of bullet wounds.

If a bullet or other foreign body is found in a gun-shot wound, its depth should be carefully marked ; because this sometimes assists in proving the distance from which it has been fired. It is also of importance to preserve the wadding, if any is found ; for by this, in some cases, the murderers have been identified, other portions of the same having been found in their possession.

SECTION II.

Of the probable Manner, Force, and Weapon, with which a Wound has been inflicted in Medico-legal cases.

In cases of medico-legal wounds, the probable manner, force, and weapons employed for their infliction, are to be ascertained by the nature and extent of the wounds, together with the known effects of certain weapons or wounding bodies, when applied with different degrees of force.

In treating of this subject, it will be most convenient to divide wounds into three classes, consisting of contused wounds, incised or punctured wounds, and gunshot wounds.

1st, Of Contused Wounds, or Injuries by Contusion.—This forms the class of injuries, in which the greatest difficulty occurs in ascertaining the manner of their infliction, and the weapon which had been employed.

Contusions may be inflicted by the application of obtuse bodies of different degrees of weight, and by different degrees of force to the injured part; or, they may be occasioned by the injured part having been projected against an obtuse and ponderous body. This variety in the causes by which contusions may be formed (many of which are always at hand), occasions the difficulty in forming an opinion upon the subject. But there are a few fixed principles, as to the effects of force when applied, in a manner similar to that of inflicting contusions, which may give some assistance in medico-legal investigations, where this subject is involved.

When a moderate sized stone is smartly struck with a small hammer, nearly the whole force of the blow is expended on the *surface* of the stone which is bruised and marked only at this part, while the interior is uninjured. This takes place from the force being counteracted by the comparatively superior weight of the stone which is opposed to the hammer. But if the same stone is struck a slow heavy blow with a ponderous hammer, the force of its own weight penetrates through the *interior* of the stone, shivers its very centre and breaks it asunder, while, at the same time, it scarcely produces any injury of the surface.

This principle is seen practically carried into operation in the arts. As, for example, by masons in hewing the surface of stones, with the smart stroke of a light mallet and chisel; and, in breaking large masses of stone, with the more tardy blows of a heavy hammer. Or by the blacksmith, in employing a succession of smart blows with a light hammer, to flatten the head of an iron pin to form a rivet; and in using a large heavy hammer, which he wields more slowly when he wishes to affect the whole thickness of a piece of iron, as in flattening or breaking it.

As the same laws or principles are in operation when blows are inflicted on the human body, we may, by the contusion

being *superficial* or *deep-seated*, infer to a certain extent, how the injury had been inflicted. Superficial contusions, we may infer, had been inflicted by the smart stroke of a comparatively light body ; while the more deep-seated contusions must have been occasioned by heavy blows from some more ponderous weapon than would have occasioned the more superficial contusion.

These positions will be found to be completely corroborated and illustrated by many of the cases detailed in the preceding chapters of this work, to only a few of which I shall here direct attention.

As examples of contusions by smart blows, with comparatively light weapons, injuring only the more superficial parts, I may refer to the following cases : Fitzpatrick (case 36), where the integument was wounded and the skull fractured by a blow from a stone thrown at him ; J. Kerr (case 37), where there was a similar complicated fracture of the skull from a stroke with a hoe ; Clark (case 157), who suffered a rupture of a portion of the bowel from a blow by a stone thrown at her ; and Finlay (case 176), whose tibia was fractured by a stroke with a poker. The superficial situation of the bones and of the bowel, in these cases, was one cause of their being fractured and ruptured by the injuries that were given ; it formed, in short, one of the necessary elements for such injuries having been produced,—while the smart blow with a somewhat ponderous body formed another.

As examples of contusions by heavy blows, inflicted with more ponderous weapons than those above alluded to, reference may be made to the following cases : Frazer (case 3), Macormick (case 4), in which there was general concussion of the brain and internal effusion of blood caused by heavy blows with the fist ; * Tait (case 22), and Boyd (case 23), where there were injuries of the brain and fracture at the base of the skull. In case 87, the lungs were torn by a cart-wheel having passed over the chest, without having either injured the external parts or fractured the ribs. In case 80, the heart was lacerated by a cart-wheel passing over the chest of a child without any external injury. In case 63, the intestines were extensively torn from a

similar accident without the parietes of the abdomen being injured ; and cases 91 and 92 afford examples of lacerations of the liver, from violence of a similar character.

Contusions inflicted by violence of two opposite kinds have now been illustrated, but it is to be kept in mind, that by the body falling with force upon the ground, or upon hard angulated bodies, injuries of a precisely similar nature may be produced. It is also to be observed, that injuries simulating both such as have been described, may be occasioned from the many different modifications which may occur in the nature and weight of the weapon used, and the degree of force with which it is applied. Consequently, the contusions may be of a mixed character,—partaking partly of the superficial, and partly of the more deep-seated kind.

From the remarks which have just been made, we can, in many cases, infer with considerable precision, in what manner contusions have been inflicted. But we may also be able to state what particular kind of violence could, and what could not, have produced specific injuries. In the case of Frazer (No. 3), for example, there was a suspicion in the minds of some, that a heavy blow with the fist could not have caused the injury of the head, which proved almost instantly fatal ; and that possibly it had been inflicted by the heavy bullet attached to a rope, which chimney-sweepers use in their profession. Now, from the principles advanced above, it must be obvious that the concussion of the brain, without fracture of the skull, was more likely to have been occasioned by the fist than the more ponderous bullet, which would have caused a mixed injury, consisting of a severe fracture of the skull and injury of the internal parts. Again, in the case of Mrs M. (No. 185), where the deep-seated parts were alleged to have been injured by a blow from a comparatively light weapon, such an effect could not have been produced, thereby confirming the opinion otherwise formed on the case.

2d, Of Incised and Punctured Wounds.—The probable weapon by which incised or punctured wounds have been inflicted, may generally be ascertained by attention to the nature of

the wound, particularly as to its form,—the appearance of its edges,—its situation, extent, and termination.

In most of the medico-legal cases which I have had occasion to investigate, the form, nature, and depth of the wound, pointed out with remarkable precision the weapons by which they had been inflicted. Thus in the case of Mrs Pollock, already alluded to (p. 104), the particulars relating to this subject were as follows :

CASE 206.—The body of Mrs Pollock was inspected by Mr Newbigging and myself on the 13th November 1825. We were informed of her having died suddenly. She seemed to be about fifty years of age, of stout form, of very low rank, having lived in a small, dirty, ill-furnished house, having only some shavings and straw upon the floor, covered with a rug, for a bed. The clothes in contact with the private parts were stained with blood. No appearance of injury could be perceived on any part of the body externally. But upon separating the *labia pudendi*, a wound about an inch and a-quarter in length was observed upon the inner side of the right nympha. This wound was evidently recent, its surface being covered with coagulated blood. Externally, it consisted of a remarkably clean, straight incision, parallel with the nympha. Internally, the finger could be introduced in four different directions, to the depth of about $2\frac{1}{4}$ inches in each ; upwards and backwards towards the division of the iliac artery ; backwards towards the tuberosity of the ischium ; laterally towards the hip-joint, and upwards towards the *mons veneris*. In each direction the wound was of nearly the same diameter, which readily admitted the finger, and had distinctly an obtuse termination. By injecting warm water into the large vessels we found that none of them had been wounded, and the penetrating instrument seemed to have been forced only through the cellular tissue. The weapon had passed up to the peritoneum at the right side of the pelvis, under which there was a considerable effusion of blood, but had not penetrated it. Another very small, but also very clean, external incision was observed at the side of that above described.

The cavities of the cranium, thorax, and abdomen, were each examined, and their contents found to be quite healthy and natural. The hæmorrhage, therefore, which had taken place from the wound was the only cause which we could assign for her death ; and this, we know from the nature and structure (erectile spongy tissue) of the parts cut, must have been profuse.

Respecting the probable instrument with which this wound had been inflicted, it was obvious from the cleanness of the cut, that the external part of the incisions had been made with a remarkably sharp-edged instrument ; and from the very obtuse termination of each of the internal wounds, their small depth, and the absence of any injury of the important neighbouring parts, it was highly probable, that, though the instrument that inflicted the wound must have had a very sharp edge, it had a round or blunt point. Now, the only very sharp-edged instrument, which I conceived such persons were likely to have possessed, was a *razor*. This instrument has also a blunt point, and could not be inserted to a greater depth than two or three inches, on account of the fingers holding its blade in so using it. I also conceived that, after the external part was cut, any sort of knife could have been thrust into the parts, so as to have formed the wound above described. This I verified by experiment with a razor upon the dead body.

It was proved by evidence, at the trial of the husband for this horrid crime, that two old rusty table-knives had been found in the house, as also two *razors*. One of these razors had its blade and handle covered with blood, and was found concealed in a piece of green cloth. These particulars rendered it almost certain that this had been the weapon used ; so that the nature of the wound previously pointed out the probable instrument with much accuracy ; though the circumstance of such having been found in the house was then quite unknown to the medical witnesses.

In this case two other points occurred for the consideration of the medical jurist. Could she have inflicted this wound herself ? Several circumstances which appeared in evidence rendered this impossible ; 1st, She was in a state of intoxica-

tion at the time; 2d, Her husband was in the house along with her,—saw her state,—went for a surgeon (Mr George White), and never alleged this at the time; 3d, No lethal weapon was found near her; 4th, The *pudendum* was a very extraordinary place for a suicide to inflict a wound.

It was also alleged and pleaded for the prisoner, that she had fallen upon a piece of broken earthen-ware and cut herself. Could this wound, then, have been occasioned by such an accident? It was impossible to conceive that any broken piece of earthen-ware in common use could, by the woman accidentally sitting down upon it, have inflicted such a clean external incision, and produced the wound in the different directions above described. Such a portion of earthen-ware, if sharp-pointed and advantageously placed, might certainly have produced a pretty severe wound of the part; but it would have been a *lacerated* wound, not of any great depth, and not larger internally than externally, and in no part greater than the size of the wounding body; and it is very improbable that such a wound would have had different directions internally.

In this case, therefore, not only was the inflicting weapon inferred from the nature of the wound, but the mode of infliction alleged by the prisoner was proved to be impossible.

CASE 207.—In another case, that of Mrs Calderhead, also already alluded to (p. 105), it was pretty evident that the wound must have been inflicted with a knife; but it was likewise obvious that the wound could not have happened accidentally, as alleged by the prisoners.

We found the body of this woman dressed in her ordinary day-clothes, and covered with a blanket. We removed her clothes very carefully. They consisted chiefly of a printed cotton gown, two flannel petticoats (one blue, the other white), and a shift. These seemed almost quite new, and had no wound or tear in any of them, with the exception of the blue petticoat, in which there were some small worn-holes. The lower part of all these garments had been drenched with blood, with which they were still wet.

We then discovered that the hæmorrhage had proceeded from

a wound upon the middle of the left *labium pudendi*. Externally, this wound consisted of a very clean incision about three-quarters of an inch in length, having a straight direction parallel with the margin of the *labium*. When the finger was introduced into this wound, it entered into a bloody cavity sufficient to have contained a small hen's egg; and from this cavity the finger passed to a greater depth in three different directions,—viz. upwards towards the under part of the *symphysis pubis*,—downwards towards the *perineum*, and backwards by the side of the vagina and rectum. Its greatest depth at any of these parts was between two and three inches. When the internal part of the wound was laid open, the divided orifices of several pretty large arteries and veins were seen, and particularly the divided extremities of the large artery going to the clitoris. The orifices of these vessels, as well as the internal surface of the wound, had the appearance of having been very clean cut by a sharp instrument. I removed the wounded parts, and preserved them in spirits.

On the back part of the head, there was the mark of a contusion, which had occasioned the extravasation of a small quantity of blood upon the anterior surface of the brain. The cavities of the abdomen and chest were quite natural.

There could be no difficulty in this case in ascribing death to the excessive hæmorrhage occasioned by the wound at the *labium pudendi*. We therefore gave this as our opinion as to the cause of death. The other question then arose, What was the probable instrument and manner in which the wound had been inflicted? From the straight, very clean incision externally, in length corresponding exactly to the breadth of many of the knives in most common use, as well as from the extent, cleanness of the wound internally, and its different directions, it appeared pretty evident, and most probable, that it had been inflicted by some kind of knife; and, indeed, it obviously could only have been produced by several thrusts of a knife in different directions. Some pieces of a broken wine-glass, however, had been found adjoining to some of the blood the woman had lost at the foot of the stair where she had received the wound. It therefore became a question of importance, Whe-

ther or not the wound could have been occasioned by her having fallen upon these broken pieces of glass?

1. Let us consider, Is it *physically possible* that any of the portions of the broken wine-glass, or of any wine-glass in common use, could have made such a wound? A portion of glass capable of forming such a wound must have been between two and three inches long, about three-fourths of an inch broad, having a sharp cutting edge, and some degree of point; and it must also have possessed sufficient strength to permit its having been moved about and thrust in different directions, without breaking. To form such a piece out of a common wine-glass, is evidently beyond the utmost ingenuity of man; far less, then, could such a portion have been formed by accidental fracture.

The broken portion of glass found, consisted of the stalk of a common wine-glass without the foot, having at its upper part the bottom of the cup of the glass, of about an inch in diameter, attached to it transversely. Nearly the whole of the cup of the glass was broken off, leaving only a few fragments of the sides projecting upwards from the bottom which remained. The part of the stalk of the glass which remained was about an inch or an inch and a half in length, and its lower part had been clean broken across, leaving no sharp point. It was, therefore, quite obvious that this fragment of glass was completely incapable of forming the wound in question; for, the length, form, and sharpness, which were requisite, were completely wanting, and any wound which could have been occasioned by it, must have been quite different in its character. A wound from such a piece of broken glass would have been a *lacerated wound*, not a *clean incision*, not larger internally than externally, and could not have had several different directions internally. The upper end of the glass would have made several small lacerated wounds, while the lower end could not have made any wound at all. I therefore came to the conclusion, that it was physically impossible for the wound in question to have been produced by any portion of a broken wine-glass such as that found.

2. But supposing that it had been physically possible for

such a wound to have been occasioned by a fragment of broken glass, was it in any degree *probable* for it so to have happened in this particular case? In order to have accomplished this, the requisite portion of glass must have been standing ready to receive the fall of the wounded part upon it; the person must have either sat down or fallen forward upon it, and her clothes, at the time, must have been completely out of the way, as there were none of them wounded; and moreover, the penetrating piece of glass must have thrust itself in different directions, making clean incisions internally as well as externally. So that a concurrence of circumstances highly improbable, nay, almost miraculous, would have been required, in order that the wound in question could have been occasioned accidentally.

From a careful consideration of the foregoing circumstances, I came to the conclusion, that it was neither physically nor morally possible that the wound received by this unfortunate woman, could have been caused accidentally by her having fallen on the portion of wine-glass alluded to; and such, I believe, were also the opinions of Mr Mitchelhill, and of Dr Christison, who gave his opinion on the case at the trial. But it could not be denied *to be within the verge of possibility*, that the wound might have been occasioned by her having fallen upon some other piece of glass or sharp body; and therefore, we individually thought proper, in giving our evidence at the trial, to qualify our opinion upon this point, by saying that we considered it to be *scarcely possible, and very improbable*.

I was also asked at the trial, whether or not this wound could have been produced by her having fallen accidentally on a pair of scissors? To which I stated, that I did not think it could by any of the scissors in common use. For it is obvious that, to have produced such a wound, the blade or blades of the scissors when together, must have had the sharpness of a knife, as also the requisite length and breadth; besides, the scissors required to be in an erect position when fallen upon, and afterwards moved in different directions to form the internal wounds,—a combination of circumstances which, as al-

ready mentioned respecting the glass, I conceived to be nearly impossible. I may add, that neither scissors nor pockets were found about the person or clothes of the woman.

By the evidence adduced at the trial of two young men, brothers, of the name of Duncan, for the murder of this woman, it was obvious she had received a wound at the first floor of a common stair, almost immediately after which, she was precipitated headlong to the bottom of the stair. When she was there found, upon being set up, blood was observed trickling down her legs. Much stress was laid by the counsel for the pannels, upon there having been no blood seen upon the stair. But when it is recollected that she had on her two thick flannel petticoats, a gown and shift, which were each drenched with blood, it is obvious that the clothes, absorbing the blood when it first flowed, and her rapid progress head forward down the stair, easily explain this circumstance. Something was said about one of the prisoners having been observed to throw a knife into a dunghill, but this was not sufficiently established.

Though the Duncans got off by a verdict, by a plurality of the jury, of "not proven," yet there could be very little doubt of the guilt of one of them. It was impossible, however, to ascertain which of them inflicted the wound, so that both were transported for *assault*.

Any lethal weapon found near the deceased, or in the possession of the accused, and which may have been the instrument by which the wound was inflicted, should be preserved, and carefully compared with the wound. Experiments should also be made to ascertain, whether or not it is capable of forming a similar wound upon the dead body. It is worthy of remark as to punctured wounds, that, in consequence of the elasticity of the skin in the living body, and the wounding instrument keeping it on the stretch, the wound generally appears afterwards to be somewhat less than the breadth of the weapon or knife by which it was inflicted.

3d, Of Gunshot Wounds.—Having already had occasion to

describe the character of gunshot wounds, it is only necessary now to add a few farther particulars, to be attended to in their examination.

The situations of the entrance and exit wounds should be carefully marked, as well as the direction of the wound, and the parts injured in its course.

If a ball is found lodged in a wound, its depth should be carefully marked, as this sometimes indicates the distance from which it has been fired.

It is of importance to preserve any foreign bodies which are found in a wound, such as glass, wadding, or bullets. In two cases, one of which occurred in England, the other in France, where the wadding was examined, it was found to have been torn from paper in the possession of the murderers. In one of the cases, half of a ballad was found among the wadding, the other in the pocket of the accused.

In several cases, paper bullets or wadding alone has proved fatal by fire-arms. A case of this kind happened a few years ago at Kirkaldy, in Fifeshire, and was tried at Perth. It happened accidentally on a King's birth-day, when some boys were firing in the streets a much larger cannon than was proper as a toy. A young woman happening to pass along at the time it was discharged, received the shot in her side, which proved soon fatal. (See other cases, *Alison's Criminal Law*, p. 114).

Preserving the bullets, when any are found, is necessary, that they may be compared with the fire-arms supposed to have been used, or in possession of the accused. If it is too large to enter the gun or pistol libelled, it would form a complete ground of exculpation. In one case, where a man was shot by another in the belly with a pistol, the ball was lodged in the belly, the body was not inspected, and consequently the bullet was not produced. The prisoner pleaded and declared that his pistol was not loaded with ball, and, as none could be produced, he was acquitted.

If shot of any kind is found, it should be compared with that in the possession of the person suspected. If two fixed points can be found where the ball had touched, the situation of the

person who fired the shot may be ascertained. A case of this kind occurred at Ayr, 1831. Several shots had been fired into the church through a window. The bullets left holes in the window, and left marks where they had struck at the opposite side of the church. By these the exact place (the window of a house on the opposite side of the street), from whence the shots had been fired, was ascertained by mathematical observation.

The inferences deduced from the particulars of which we have now been treating, will often prove of importance in confirming or disproving material parts of the general evidence, in cases of homicide, more especially as to the intent of the perpetrator, his position, the manner in which the wound has been inflicted, and whether an injury was the result of accident, suicide, or homicide.

SECTION III.

On the question, Whether has Death by Violence been the result of Accident, Suicide, or Homicide?

I now proceed to make a few remarks on the question, as to whether death by violence has been the result of *accident*, *suicide*, or *homicide*.

The decision of this question, in many cases, entirely depends on the opinion of the medical jurist. To him, therefore, it is of peculiar importance; and from the effect his decision may have, in thus establishing the guilt or innocence of persons who may be suspected of having committed murder, it is well deserving of his most serious attention. In illustration of this, many of the cases in the preceding pages might be referred to, in addition to those about to be added.

In deciding this question our inference is to be drawn from the consideration of various circumstances; such as the situation in which the deceased is found,—the nature, situation, and extent of the injury, and the manner of its infliction,—or by the fatal injury being such as could have happened only in one particular way,—or from the impossibility of its having hap-

pened in the manner alleged by the prisoner in his defence. On each of these particulars I shall now make a few remarks. There are some other circumstances, attention to which is also of importance ; such as the state of the clothes, expression of the countenance, and the previous history and state of mind of the deceased ; but of these I shall afterwards have occasion to treat in a subsequent chapter.

It is also worthy of attention, that suicide is rarely practised either by the very young or very old ; it is most common in persons about the meridian of life.

1st, The situation and circumstances under which the body of the deceased is found, are important in forming an opinion as to the manner of death.

If a person is found dead in bed with his throat cut, and the door of his apartment locked on the inner side, what inference could be drawn but that of suicide ? If another individual could have got access to the apartment, however, and no cutting instrument is found near the deceased, it is obvious that the fatal wound must have been inflicted by another person. In like manner, if the body of an individual is found suspended in such a situation that he could not have suspended himself ; or if, on a body found suspended or immersed in water, marks of injury are found sufficient to account for death, the inference is equally palpable, that murder must have been committed before the suspension or immersion of the body.

If a dead body is found at the foot of a precipice, having upon it marks of severe injuries which could not have otherwise happened, the inference of death by accident or suicide are highly probable ; this not being a mode of committing murder ever practised.

The body of the deceased having been secretly and clandestinely buried after death by violence, or the blood from a mortal wound having been washed clean from the body and floor upon which it had flowed, before assistance is called, are circumstances highly suspicious of murder.

There are other circumstances connected with the situation and circumstances in which the deceased is found, which pre-

clude all idea of death having happened from accident, suicide, or from natural causes, as in the following case :

CASE 208 —In the case of Mrs Reid, who was supposed to have been murdered by her husband (already alluded to at p. 70), much of the proof of the guilt of the prisoner seemed to hinge, on the situation in which the body of the deceased was found by the neighbours.

Mrs Reid was fifty-six years of age. For a considerable length of time before her death, as was stated by her brother and the neighbours who knew her, she had been in a very weakly state of health, and seemed palsied. She and her husband had lived very unhappily together. He was idle and drunken in his habits, so that she lived chiefly by begging. He was often known to use his wife very badly, and use threatening expressions towards her.

On the 20th September 1834, Mrs Reid was heard speaking from her bed at nine o'clock in the morning. Reid had afterwards come in, and he and his daughter (about seven years of age) were seen leaving the house. He left the girl with some of the neighbours, and did not return to his house till two o'clock, when he remained in it for about ten minutes. When he came out from his house he was the worse of drink, and appeared much disconcerted about his wife, and requested some of the neighbours to see her. On entering the house, Mrs Reid was found in a sitting posture in front of the bed, having her head erect, and holding up her right arm and hand,—her body being in a state of nakedness, with the exception of some of the bed-clothes which surrounded the lower part of her body, and which presented the appearance of having been dragged out of the bed along with the body. It was soon ascertained that she was dead ; and, as her body was rigid, this must have happened some hours previously.

The medical report, after the examination of the body by Drs Forbes and Williams, stated that they “ found the neck dislocated between the first and second vertebræ, the atlas and dentatus, and the second vertebra of the neck, fractured in the

middle of the *processus dentatus*.” This injury they assigned as having been the cause of death. The opinions of Drs Christison and Traill, who were examined at the trial upon the evidence laid before the jury, confirmed the possibility of the death of Mrs Reid having happened from injury in the manner alleged, viz. by a severe blow from an obtuse body, which had caused injury to the *vertebræ* and spinal chord, without the skin having been wounded externally. This opinion was given in consideration of the appearances of *ecchymosis* and fracture of the vertebra, stated to have been found after death, being correct; and from the erect position in which the body was found, as it must have been so placed, after death and rigidity had taken place. Death by an accidental fall was in this case out of the question.

But the medical gentlemen who inspected the body, certainly did not give a very distinct account of *ecchymosis* having been found, at the part of the neck upon which the alleged injury had been inflicted. Mr Williams, on his examination, stated his having made incisions by himself, and dissected off the skin of the neck. On doing this, he “found the resemblance of a blow or concussion” on the *left* side behind the ear. He “then proceeded on the *right* side, and dissected away as before, and found a quantity of coagulated blood, as much as half a pound, and examined the jugular vein and found it ruptured. Coagulated blood did not flow from any other part but below the right ear.” Upon the day following, he and Dr Forbes made a farther examination together. On this occasion, great mobility of the head was found, and a grating sensation as if from a fracture of the neck. Dr Forbes stated in his evidence, that “he saw no coagulated blood more than is seen in a common dissection.” “He did not ascertain the state of the jugular vein. He does not think there is much distinction between *ecchymosis* and *livor* or *lividity*.”* The bones of the neck, which would have shewn whether or not there had been any previous disease of them, were not preserved.

It must be quite obvious how unsatisfactory these statements

* The particulars of this case are taken from the report of the trial of Reid, “published by authority,” in 1835.

are. *First*, by Mr Williams, in stating his having found the resemblance of a blow on the *left* side, and rupture of the external jugular vein, with effusion of blood on the *right*; without discriminating properly whether the blood was contained in a sac or cavity under the skin, into which it had been effused before death; or had flowed out from the vein, as was very probable, when he dissected the skin from it. And, *secondly*, by Dr Forbes not being able to distinguish ecchymosis from lividity. These circumstances afforded sufficient grounds for thinking, that complete reliance could not be placed on the accuracy of the reports, upon the medico-legal examination of the case.

Hence, there was brought forward an exculpatory plea, that death had occurred, not from violence, but from natural disease,—a plea which could not have been for a moment entertained, if reliance could have been placed on the accuracy with which the facts had been ascertained. This plea gained considerable weight, and influenced the minds of the jury in their decision, not only from the imperfect examination of the case by the surgeons after death, but also from the weakly state of health in which Mrs Reid had been, for a long time before her death. Her delicate state of health consisted of great weakness and slight paralysis, accompanied with pain of the head and back, which made her stoop and fall to one side when she walked, and void her urine and fæces in bed. These being the symptoms of disease of the spinal chord and vertebræ, which have been observed to terminate in sudden death by fracture of the vertebræ,* formed a strong reason for the public prosecutor having given up the case, and for the jury finding the murder “not proven.”

In this case, though the evidence was by no means so conclusive as to have warranted the conviction of Reid, yet the position and circumstances in which the body of Mrs Reid was found, put death by accident, suicide, or natural disease, out of the question. The body had evidently been placed there, and remained in its peculiar position, from the state of cadaverous ri-

* See Sir A. Cooper on Fractures, p. 495; Lawrence, Med. Chir. Trans. v. xviii. p. 406.

gidity, and so could not have assumed its position before death, under any conceivable circumstances.

2d, The nature and situation of the wound or injury frequently decide the question under discussion.

Contusions are very rarely self-inflicted ; they must therefore, in most cases, be the result either of accident or homicide. I say in most cases, for persons have sometimes committed suicide by casting themselves over precipices and from windows. It was also effected, in the case of a prisoner, by running so as to dash his head violently against the wall of his dungeon. Maniacs have also been known to inflict numerous contusions on themselves in a methodical manner.

CASE 209.—A short time ago I examined the body of a man, who, in a fit of despondency, seemed to have committed suicide, by throwing himself from the top of Salisbury Crags. The marks of injury upon the body, consisted of a black eye and slight cuts on the head, a large wound on the sacrum, and a severe fracture of the left ankle joint.

It was evident from the nature of these injuries, that they were the result of accident or suicide, and not injuries inflicted by another, unless we can suppose one so diabolical as to have thrown the deceased over the precipice.

Of suicide by precipitation from windows, I have known a considerable number of instances ; these have taken place either in fits of violent passion, insanity, or the delirium of fever.

Although contusions are very rarely inflicted by suicides, yet it is often very difficult, in many cases, to determine whether they have been the result of accident, or of injury inflicted by another person. In such cases, the situation of the contusion is of importance ; for, it may be situated in a part of the body, which could have been injured by an alleged accidental fall, as on the inner side of the arms or legs,—on different sides of the head, and the like.

Very severe contusions or lacerations, which could only have been inflicted by means of an axe, hammer, or other such pon-

derous weapon, are almost always inflicted by another for the purpose of murder. In such cases, accident and suicide are, generally, both out of the question.

CASE 210.—Widow Geddes, between 60 and 70 years of age, lived in a cottage at a small hamlet near Cramond, about five miles distant from Edinburgh. On the forenoon of the 2d December 1831, some of her neighbours were in her house; but seeing a very forbidding and suspicious-looking beggar, going about from door to door among the cottages, they left her to go and take charge of their own houses. At this time Widow Geddes was sitting at a window within her own door, knitting a stocking. After the mendicant had passed along, a fishwoman, or one of the neighbours, happened to look into Mrs Geddes's house, and saw her lying dead on the floor, weltering in blood, and her skull extensively fractured. She was lying just at the spot where she had been shortly before left sitting by her neighbour; the stocking and worsted remained in her hand, and a spade, which belonged to the house, lay beside her, having blood and brains upon it. I inspected the body at the request of the Sheriff, about five hours after she had been found dead on the floor. The expression of sudden terror or horror was strongly depicted in the countenance, the eyes projected and staring, and the mouth open. I found nearly the whole of the scalp detached from the left side; also the upper part of the cranium, and brain, separated from its base. These remained attached, only by the integuments of the right side; so that she had evidently received a very severe blow, causing a lacerated wound on the left side of the head, through the upper part of the ear, either with an axe, spade, or some such weapon. On examining and tracing the wound more particularly, I found that it must have passed across the interior of the skull to the opposite side, raising the upper part of the cranium, the left eye-ball, and the greater part of the brain, in its progress. Besides the probability that the spade was the weapon with which the wound had been inflicted, from its having been found lying beside the body with recent blood and brain upon it, I discovered a distinct indentation on the inside of the bone, made by its point at the pos-

terior part of the right side of the cranium, corresponding to where the corner at the point of the spade must have terminated, and another distinct mark at the place where the other extremity of the same side of the spade had terminated at the temporal side of the right orbit. These circumstances rendered it certain that the spade had been the instrument by which the blow had been inflicted. Almost every bone of the cranium, and several of the face, were more or less fractured. The left ramus of the lower jaw was broken through at its middle, so that it is probable several blows had been given. There was considerable ecchymosis at the temporal muscle of the left side. The cap, which had been upon her head, was partly torn and partly drawn into the wound. There was a good deal of blood upon it, and also some black earth on its upper part, similar to some which was upon the spade, none of which earth existed upon the floor of the house. The blood upon the floor was coagulated and ponded; and from the marks upon the skin, much blood had obviously flowed from the wound. There were no other marks of injury upon the body.

The state of her usual health, in which Mrs Geddes had shortly before death been left by her neighbours, the features of sudden terror depicted in her countenance, the stocking she was knitting in her hand, and the worsted thread still around her finger, the appearance of the wound, the blood upon the floor, the instantly mortal nature of the wound, which must have prevented her from stirring from the spot, and the appearance of the spade, rendered it evident that the wound had been inflicted before death, that it must have proved instantly fatal, and that it could neither have been inflicted by herself nor by accident. From the black earth on the upper part of the cap, which corresponded with that on the spade, it is probable she was first stunned and knocked down with the flat side of the spade, and the wound afterwards inflicted when she was lying on the floor.

John Howison, the mendicant who had been seen begging from door to door of the cottages, was afterwards convicted and executed for the murder. He pleaded insanity at his trial, which was not established to the satisfaction of the jury. That part of the case relating to insanity, I shall afterwards

have occasion to detail, under the chapter on the exculpatory plea of insanity.

This woman, from the nature of the injury, could not have stirred from the spot where it had been inflicted, and it could neither have been caused by accident nor suicide. Its immediately fatal nature was necessary to prove the crime against the prisoner, who had been in the house only for a very short space of time.

CASE 211.—Mrs M'Gibbon, residing at Glasgow, was found dead upon a sofa, on the 3d October 1831. When her body was examined by Drs Corkindale and Spittal, it was found that there was a contused and lacerated wound on the left temple, with fracture of the skull. The bones beneath the wound had been broken into numerous fragments, and driven in upon the brain; thirteen loose portions of which were picked out from the substance of the brain, into which they had been imbedded. The frontal, parietal, temporal, sphenoidal, and malar bones of the left side, as also the lower jaw, were those chiefly fractured. The brain was extensively lacerated, and covered with blood. There was a considerable quantity of blood beneath the head. From the appearance of this wound, it had obviously been inflicted by an axe, or other such ponderous and blunt weapon, and had caused instant death. It could neither have been by accident nor suicide. While she had been asleep upon the sofa on the evening previously, her nephew Robert Stirrat, who lived in her house, inflicted an extensive wound on the side of her head by means of an axe. Stirrat made a confession of the crime; he was tried, convicted, and had sentence of death. But, as his exculpatory plea of insanity, though not proved, was in some degree doubtful, he obtained a respite, and was afterwards transported.

I have already shewn that the situation of a wound, in cases of homicide, is often of importance in indicating the intent of the person who inflicted it. Where the wound is situated in a concealed part, as in the female organs of generation, this circumstance is highly suspicious of murder. For in the cases above alluded to, this part of the body seems to have been selected by the murderers to effect their design secretly. The wounds

were concealed to a superficial observer. And the inflictors of them must have had an idea, from the frequency of "flooding" in females, that the deaths might have been supposed to have happened either from this cause, or by the deceased accidentally injuring themselves by sitting down upon some sharp body. For, it is a curious fact, that in several cases, the murderers were the first to go for medical aid to the deceased. This also happened in many other cases of murder. In several of these cases the defence set up by the pannel's counsel of the deceased having cut themselves by having accidentally sat down upon broken sharp bodies, was certainly plausible, and could only be controverted by the careful examination of the nature and form of the wounds, and a comparison of them with the alleged inflicting bodies. This was of great importance, as the deceased did not live to narrate the causes of their wounds; and, it appears to me, that the inferences deduced were beyond the possibility of doubt.

Death by *incisions* seldom occurs in medico-legal cases, except in suicide. In 1824, a man, named Divine, was tried and executed for the murder of his wife, by having cut her throat with a razor. In another case of death by incisions on the throat, which occurred at Stirling a few years ago, and where murder was suspected, the circumstances were very strong against the accused, but the case was so doubtful that the prisoner was acquitted. The particulars were the following.

CASE 212.—Mrs Thomson or M'Ansh, was tried at Stirling, 8th September 1832, for the murder of her daughter, by cutting her throat.

The daughter had been for some time almost entirely confined to bed, being in the last stage of consumption, and had become so weak that she was unable to move or do any thing without assistance. Though she lived with her mother, the neighbours were in the habit of paying her friendly attentions.

On the evening before her death, one of them had laid her comfortably in bed (the mother being intoxicated), and pared the nails of her fingers and toes for her, as she requested. Between four and five o'clock next morning, Mrs M'Ansh awoke the neighbours, who, on going to the house, were not surprised

to find the daughter lying dead in bed. The head was resting on the left hand, and the right hand lay by her side, and the bed-clothes were pulled up close to her chin. But on preparing to dress the body, the throat was found to be extensively cut, from which much blood had flowed both upon the bed and floor. The blood about the pillow had been concealed as well as possible, and that on the floor was covered with ashes. The mother pretended complete ignorance of all this. But on being interrogated, said the daughter had asked a razor to pare her nails, but she did not say whether she gave it to her or not. The razor, with blood upon it, was found by Mrs M'Ansh in a drawer four or five feet distant from the bed. Mrs M'Ansh repeatedly requested the neighbours to keep quiet about the case, and not to expose her.

The wound was found to be a clean incision on the left side of the neck, dividing the left carotid artery and trachea, and such as had occasioned almost immediate death. Death by accidental injury was here out of the question. It was, therefore, either a case of suicide, as was pleaded in exculpation, or of murder.

In this case the daughter could not have risen to get the razor for herself, and far less to replace it in the drawer, after receiving the wound; which very probably she had not strength to inflict. The whole circumstances were at variance with the account given by the mother regarding her death. But though all these circumstances appeared to be very strongly against the prisoner, yet there was no direct evidence to criminate her. The jury, therefore, pronounced a verdict of "*not proven*."

The above case rested entirely on circumstantial evidence, one part of which, as in the case of Reid, upon which much depended, was the state and position in which the body was found after death by the neighbours.

It has been conceived that in cases of suicide, wounds are seldom made steadily so as to form a clean cut, unless the person is in a state of delirium. But few persons commit suicide who are not either in delirium, or in a state resembling it, at the time. Besides, a single very clean cut may be inflicted

with a sharp knife by a determined suicide without any delirium; while, on the other hand, a wound made by an assassin may be ragged and uneven, from the struggles of his victim. No great reliance, therefore, is to be placed in this indication of suicidal wounds. Neither is any confidence to be placed in the evidence deduced from the number of the wounds; which, in suicide, are said to be generally few in number. But, though suicide is often effected by one or two incisions on the throat, there have been many cases where the number has been much greater. See case of Sutherland, No. 72; also case No. 101.

CASE 213.—On the 2d October 1832, I visited Mrs Y., æt. 25, who, on the night previously, made incisions upon the neck with a razor to commit suicide. The marks of three incisions were visible on the integuments, and the trachea was almost completely divided across in two places. She had lost a considerable quantity of blood, though none of the large vessels had been wounded. Next evening she died, partly from the wound, and partly from the previous state of phthisis with which she had been affected.

In several other cases of suicide, I have observed marks of various incisions on the throat; but certainly in a considerable number, only one.

Some individuals have been known to inflict a great number of wounds on themselves methodically. But if there are two wounds upon the body, both of a mortal nature, and particularly if one of them is of a stunning or stupifying tendency, by being upon the head, they may generally be considered incompatible with suicide.

Death by *stabbing*, is generally the deed of another person for the purpose of murder. It occurs rarely for the purpose of suicide; and still more rarely by accident.

CASE 214.—In the case of M^r Keil (No. 98), already noticed, who died from a stab in the thigh, which wounded the femoral artery, several circumstances tended to render it extremely improbable, that the wound had occurred either by accident or suicide. His wife, who was suspected of having stab-

bed him, said that, when he was at work, he became giddy and faint, then fell down, and the knife being in his hand at the time, he fell upon it. To render this possible, he must have fallen to the side upon the knife, with his thigh bent upon the body, as in the sitting posture ; for it was only in this position of the thigh that either a probe or the finger could be made to pass into the wound. Mrs M. also said that the knife was found lying beside him ; if this was the case, how had he been able, in the state of syncope, to withdraw it from his thigh, for it could not have fallen out of itself ? If she saw him fall upon the knife, why did she not pull it out and call assistance ? These circumstances confirmed the supposition, that some other person had lifted up the knife and stabbed him when he was sitting at work, rather than accident.

CASE 215.—A case of immediate death from the accidental thrust of a bayonet, occurred lately at Mid-Calder. Several of the inhabitants had offered to act the opera of “ Rob Roy ” for a charitable purpose. When some of the Highland soldiers were on the stage firing their muskets in one of the concluding scenes, the individual who acted Bailie Jarvie, in the heat of action, and when the stage was obscured by smoke, ran forward upon one of the soldiers’ bayonets, by which he was stabbed in the chest, and died in a few seconds.

The *situation* of a wound is very important as to the question now before us. In committing suicide, wounds are very seldom inflicted on the back or left side of the body, unless the individual is left-handed. Accidental or self-inflicted wounds also very rarely occur in a concealed part of the body.

In cases of suicide the situation of the wound varies with the kind of weapon used. Thus, if a suicide shoots himself, he generally does it through the head ; if he stabs himself, he does it in the chest or belly ; if he effects his purpose by a cutting instrument or incisions, he selects the throat.

CASE 216.—William Orford, who was tried at Bury St Edmunds in 1831, for having shot Thomas Chiswall, immediately after firing the gun attempted suicide by cutting his throat with

a razor, though he had both a gun and a drawn sword beside him. This case strongly illustrates the tendency of suicides in this country, to accomplish their purpose by cutting the throat.

If a wound has been inflicted in a concealed or hidden part of the body, as in the vagina (cases 206 and 207), it is strongly presumptive of murder, or other criminal purpose.

In order to form a correct opinion as to the purpose for which a wound has been inflicted, it is also of great importance, as has already been remarked in the preceding chapter, to ascertain, if possible, the probable weapon by which it was inflicted. If there is a wound upon the body, and no inflicting weapon is found near it, or if the probable weapon of infliction is found concealed, where it could not have been deposited by the deceased, suicide and accident are both out of the question. Any weapon found should be compared with the wound; and in some cases the hand of the deceased should be applied, in order to ascertain whether or not the wound could have been self-inflicted. If the weapon found does not correspond with the wound, it is necessary to ascertain whether or not another weapon has been put there by another person, in order to simulate suicide.

Murderers and highwaymen often use several weapons to despatch their victims; first employing one to stun, and then another to stab, shoot, or strangle their victim. Suicides, on the other hand, seldom use more than one. But, to this, there have been some exceptions.

If gunshot wounds occur in the back, they cannot have been self-inflicted. If small shot has been fired, the distance from which it has been shot may be judged of by the pellets of the shot being close or scattered, and the depth to which they may have penetrated.

The nature and situation of a wound may also throw light upon a question, as to whether a wound had been inflicted for the purpose of murder, or only in self-defence, as in the following case.

CASE 217.—William Taylor, a man of colour, was tried at Lancaster, March 18. 1834, for the murder of Mary Ann Benson at Liverpool.

On the morning of Christmas day, Taylor entered the house of Tierney, a brothel, in which Benson lived. Taylor and Benson had quarrelled, the former having no money, and refusing to go up stairs with the latter. Benson and two other females desired Taylor to leave the house. Benson took hold of Taylor by the collar in the passage; a struggle ensued, which, one of the females said, lasted for ten minutes. At the door he pulled out a knife, stabbed Benson in the breast and ran off. B. died almost immediately.

Taylor, in defence, said he went into the house in search of some shipmates; that the women all fell upon him, and he unconsciously drew his knife and struck the blow when he thought he was in danger.

The judge remarked, that if the jury were convinced of the blow having been struck in a violent struggle, it would be manslaughter.

The jury returned a verdict of manslaughter, and Taylor was sentenced to transportation for life.

In this case the deceased received a wound which proved *almost instantly* fatal. There was a struggle which lasted for about ten minutes. But Benson could not have struggled for ten minutes after receiving this wound. As she must, therefore, from its nature, have received it at the *conclusion*, not the *beginning* of the struggle, it is highly probable that it had been given in self-defence. The case was, therefore, one either of murder or of *homicide in self-defence*. I would have said the latter.

The special circumstances which occur in individual cases are so various, that general rules cannot be laid down which will be applicable to them all. In deciding the questions, therefore, of death by accident, suicide, or homicide, each case must, in a great degree, be considered upon its own merits.

CHAPTER XI.

OF CONCEALMENT OF PREGNANCY AND INFANTICIDE.

Preliminary Remarks.

THE concealment of pregnancy, and the destruction of the infant at the time of birth, is a crime not unfrequent in this country ; concealment of pregnancy being, of course, always charged against the mother of the infant, who, in this part of the crime, can have no accomplice ; while the charge of infanticide, though most commonly perpetrated by the unnatural mother, or by her knowledge and consent, may be the deed of another, as by the father of the child or mother of the female delivered.

The extreme facility of extinguishing the infant life at the time of, or shortly after birth, renders this a very dangerous crime to society, and one with difficulty proved.

But in all cases of concealment of pregnancy when the infant is found dead, the mother is not equally culpable ; for, as we will afterwards see, the child may have been born dead,—been lost for want of assistance at the birth,—or in consequence of the mother neither having time nor opportunity to call for aid. Hence, cases in which the death of the infant can be attributed to violence inflicted with *murderous intent*, assume a very different aspect, and merit a more severe punishment, than when it has been occasioned simply by neglect, or by circumstances preventing proper aid from being obtained.

In order, therefore, to facilitate the proof of this crime, mitigate the punishment of it (which, by drawing no distinctions, was too severe), and render the law less sanguinary, it has been divided into two parts, constituting two distinct degrees of the same offence. The *one* consisting of concealment with neglect

to call assistance at the birth, by which the infant perished ; the *other*, the wilful murder of the child. But women are seldom tried for concealment of pregnancy, unless infanticide is suspected. The former is punishable by imprisonment for a period not exceeding two years, the latter with death.

In establishing a charge of concealment of pregnancy with neglect to call assistance at the birth, it is necessary for the public prosecutor to prove, 1st, The pregnancy of the female for at least seven months, before which time it is not probable the infant could have lived, and consequently could only be considered an abortion ; 2d, Her concealment of the birth, and neglect to call for aid, which presumes an intention on her part to deal unfairly with her offspring ; and, 3d, That the child is either dead or missing.

The alleged concealment and death of the child are implied, if the prisoner can prove nothing to the contrary.

In order to establish this degree of the offence, it is not necessary to inquire whether the child has actually been killed or not. But the pregnancy must have been of such duration as to have given birth to a child capable of living and being reared ; not a premature birth, or abortion of four, five, or six months.—*Alison*.

If, on the other hand, the female can prove the birth either to have been premature,—to have come on suddenly from accident,—that the infant was still-born, and did not perish from neglect,—or that she revealed her state, even to one individual, at whatever time, any one of these would be fatal to the charge made against her ; and if she had sent for assistance, even though it arrived too late to save the child, she would be held as liberated from the penalty of the statute, having done what she could to save the infant. Hence, there is much difficulty in establishing a charge of concealment of pregnancy, there being so many pleas by which the prisoner may be exculpated. Accordingly, in the case tried at Edinburgh, 29th November 1832, where the female had been delivered in a privy, where she alleged the birth to have come upon her suddenly and unexpectedly, the case was found “ *not proven*.”

The charge of infanticide requires to be established by the

same kind of evidence which is necessary in other cases of murder, as to the cause of death, by the employment of violence or dangerous exposure, and with murderous intent.

In all cases of infanticide, however, there are several additional points for the investigation of the medical jurist. 1st, As the individual murdered could not have been known, it is necessary to prove the infant to have been that of the person accused, by ascertaining that she was pregnant, and recently delivered, and that her pregnancy corresponds with the age of the child. 2d, It is also necessary to prove that the child had been born alive,—had lived, and that it died from violence.

Accordingly, it is necessary for us to consider the following questions in their order.

1st, Has the prisoner, the supposed mother of the child, been recently delivered ?

2d, Was the child so mature at birth that it might have lived and been reared ?

3d, Was the child found really that of the prisoner ?

4th, Could the prisoner have concealed her pregnancy during its whole course ?

5th, Was the child born dead or alive ?

6th, What was the cause of the child's death ?

SECTION I.

1. *Has the Prisoner, the supposed Mother of the Child, been recently delivered ?*

The signs of recent delivery are, 1. The sudden disappearance of some of the signs of pregnancy, such as the size of the belly. When diminution of the size of the belly takes place after delivery, there is observable a considerable elevation of the lower and false ribs,—of their cartilages and lower extremity of the sternum. There is also a wrinkled and flaccid state of the parietes of the abdomen.

After several deliveries, the belly appears swollen, pendulous, and wrinkled. In the higher ranks, where the female can be

well nursed and taken care of, there may be very little wrinkling even after two or three pregnancies ; but this I have also observed in the lower ranks, where the female was stout, young, well formed, and in good health.

2. Milk in the mammæ. Milk fever is an unequivocal sign of recent delivery ; but in some cases, there is neither milk fever nor milk in the breasts. The absence of this sign, therefore, is not to be considered a proof of the female not having been recently delivered. It is also to be kept in view that a fluid like milk has been sometimes discharged from the breasts, after the discharge of hydatids or a mole from the uterus. The discharge of such a fluid resembling milk is, therefore, not to be considered an unequivocal proof of the recent delivery of a fœtus, unless strongly corroborated by other circumstances.

3. The existence of the lochial discharge. This might easily be confounded with other discharges, but may, in general, be recognised by an experienced practitioner, by its peculiar smell. This peculiar odour is quite well known to accoucheurs, and can at all times be felt in the convalescent ward of a lying-in hospital, where there are puerperal women. This criterion of a discharge being lochial may, by some, be considered to be dependent on too delicate and precarious a sense, to be relied on in so important a matter. It is one, however, which is so evident, that it may, with the utmost confidence, be relied upon, especially if accompanied with other signs of recent delivery.

4. State of the genital organs. In all cases of recent delivery, upon examination, the external parts are found relaxed and dilated ; there is swelling, and tenderness from contusion of the parts. In some cases, the perineum is found to be torn, and the os uteri, as well as the uterus itself, are found to be larger than they are in the virgin state.

The absence of these signs of recent delivery which have been enumerated, is proof that delivery has not *recently* taken place. But as they disappear, by gradually going off in ten or twelve days after delivery, their absence is not proof that the female has not lately had a child.

The delivery of a child at the usual time, especially in secret, is likely to produce much more injury of the parts than the de-

livery of a mole could do. The delivery of a foetus by abortion too, is not attended with the same dilatation and flaccidity of the parts. In such cases, the other signs of recent delivery may also be wanting; so, in some cases, it is only by the presence of the lochial discharge that I have ascertained the fact. The females afterwards confessed that the opinion formed was correct.

No one of the signs enumerated is alone sufficient proof of recent delivery. Individually, they form presumptive proof. But the presence of several of them, along with other presumptive evidence, renders the case clear and conclusive. Even the absence of any one of them would not render the case less certain.

In consequence of the parts resuming their former state, it is necessary to make the examination of them within a few days after delivery, and not later than ten days, for the parts may then have returned to their former state, as before impregnation.

There are only three cases with which signs of recent delivery may be confounded. 1. Dropsy; 2. Hydatids; 3. Mole. Neither of the two first, however, are followed by milk in the breasts, or lochial discharge. The case of a mole may be more puzzling, as also dropsy of the uterus.

In *post mortem* examinations, the signs of recent delivery are also of importance. The uterus and vagina are enlarged and flaccid. If examined very recently after delivery, the deciduary membrane will be found separating from the inner surface of the uterus, there may be only some shreds of it remaining, or a bloody lochial discharge. The size of the uterus, and these appearances, diminish according to the length of time from the period of delivery. A day or two after delivery, it resembles a large empty flattened pouch; at the end of a week, it is about the size of two fists. In a month it returns to its former unimpregnated state.

The part of the uterus to which the placenta was attached, can generally be seen of a darker colour than the rest. The Fallopian tubes and their extremities are remarkably vascular, and have in consequence a deep red or purple colour. The *corpus luteum* in one of the ovaries, is also an additional sign,

but this is only to be relied on as a confirmation of other signs.

The *post mortem* appearances of recent delivery are by far the most certain and infallible. In cases of criminal abortion, they are often of great value and importance, as many trials connected with abortion, are trials for murder also, the female having fallen a sacrifice to the means employed to effect the miscarriage.

SECTION II.

Was the Child so mature that it might have lived and been reared?

I shall merely observe on this question, that the most commonly received opinion is, that a child had some chance to have lived if born at six months, but it might certainly have lived and been reared at seven months. In order to establish this, the mother must either be proved to have been seven months pregnant, or the child, from its appearance, evidently more than this age.

SECTION III.

Is the Child found really that of the Prisoner?

In the case of a young woman who miscarried at an early period, the child was conceived to be at the full time, and she was executed for child-murder, another child having been substituted for hers. This question is therefore of great importance, and though it is to be determined chiefly by moral evidence, yet light may be thrown upon it by the medical jurist. In his investigation the following are the points requiring his attention.—1st, The examination of the woman as to the duration of her pregnancy, and a comparison between this and the probable age of the fœtus.

Although we cannot say from any examination how long a woman has been pregnant, we can know pretty accurately the age of the fœtus, and this is to be compared with the account given by the female of the duration of her pregnancy. *2d*, Inquire into the nature of her delivery, to ascertain whether it was natural or laborious, in order to compare this with the state of the child. If laborious, there will probably be marks of injury upon it. *3d*, How long it had lived? That the real age of the infant may be determined, its reported age may be compared with the changes which the parts of the mother may have undergone since her delivery, in order to ascertain whether or not they agree. *4th*, Examine the state of the genital organs as to marks of injury, or of recent delivery; these are to be compared with the probable age of the child. Regarding the age of the infant, we compare its reputed age with the state of the organs of generation; in this, we compare the state of these organs with the apparent age of the child. The probable length of time it had lived, is to be ascertained by attention to the state of the umbilical cord, the cuticle, the meconium in bowels, food in the stomach, urine in the bladder, and the fullness and clearness of the eyes. If the body is in a rigid state, death must have happened only a few hours previously. Relaxation and marks of decomposition, shew that the interval since death must have been longer. But in judging of this, attention must be paid to the season of the year, the climate, the temperature of the place in which the body had been placed, &c.

SECTION IV.

Could the Prisoner have concealed her Pregnancy during its whole course?

Concealment of pregnancy can only be made out against the prisoner, if she have been delivered at the full time. For, previous to this, she might have intended to disclose her situation, which the premature and unexpected delivery may have

prevented. But in some cases, also, the female may have been pregnant without her knowledge, as by sexual intercourse during sleep, or when under the influence of some narcotic drug. She might also not have conceived herself pregnant, from having confided in some means of her own or of her lover to prevent impregnation. In the case of a girl of weak intellect, she believed her seducer when he told her, that if the deed was accomplished *under water*, she would not get with child.

Some women, too, from their state of health or their age, may not think it possible for them to become pregnant. In two cases of women upwards of forty years of age, in whom the menses had ceased, and who had been accustomed to sexual intercourse, pregnancy took place after they had considered it quite impossible. One of them said she had lived twenty years with a bachelor, and had always used means previously to prevent impregnation.

Some women who are pregnant, persuade themselves, and endeavour to persuade medical men, that they are affected with dropsy.

A young woman was in the Royal Infirmary some years ago who had a watery discharge several times from the uterus; she afterwards had every appearance of being dropsical, and was eager to be tapped. This the surgeons declined, and soon after this she was delivered of a child. She would not previously admit the possibility of her being pregnant, and had persuaded herself it was not the case. This is confirmed by her wishing to have herself tapped; for she would not have allowed this to be done, even if proposed, had she thought herself pregnant.

Young women, however, easily cling to any thing else which they conceive may be causing their altered state, and remove the idea of pregnancy. Thus, I have often seen young females attribute the obvious symptoms of pregnancy to suppression of the menses, which is the effect of pregnancy, and always takes place from it.

It is necessary also to keep in remembrance that delivery may, in some cases, take place suddenly and without the know-

ledge of the female, as in fever, epilepsy, or apoplexy. I have seen it also take place in cholera.

Delivery has also taken place, in some cases, so suddenly that the woman had no time to call for assistance, as when raised by diarrhœa. In these cases the umbilical cord has been broken fairly through.

Some of these conditions to account for the concealment of pregnancy (or rather for the female not having communicated her state), must be present, otherwise it is extremely probable to have been intentional. And such a plea of exculpation is only admissible, as I have already mentioned, in a special case, upon evidence of its being given by the prisoner.

Upon the whole, it is extremely improbable, in medico-legal cases, that such a concurrence of circumstances have occurred to the prisoner, as are necessary to account for delivery without disclosing her situation and calling aid. These must be either her not being aware of her situation, as to pregnancy or delivery, or premature and unexpected labour having come on so suddenly and in such a situation, as to prevent the possibility of obtaining assistance.

SECTION V.

Was the Child born dead or alive ?

This forms one of the most important inquiries connected with the subject of infanticide. For, that the child was born dead, is one of the most common pleas of exculpation. It is important, also, from the difficulty which attends its investigation. The following are the tests by which this question is to be determined.

1st, By the signs of immaturity of the foetus. These have been already detailed. When they exist, the immaturity is presumptive of the child having been still-born.

2d, By the marks of the child having died in the womb or passages. If the child died in the womb it must have hap-

pened from five to twenty days previously to delivery, and consequently putrefaction must have advanced to a considerable extent. In this case, the colour and putrid odour of the *fœtus*, together with the peeling off of the cuticle, will be sufficient to prove it.

The signs of death during labour are more equivocal. Along with protracted labour, there may be marks of great compression of the head and body of the infant,—twisting of the cord,—premature delivery of the cord,—*hæmorrhage* from the cord,—and general weakness of the child. But along with any of these, the lungs must obviously never have respired or been distended with air, otherwise none of these signs are conclusive. There may also be some malformation about the child to account for its not having lived after birth.

That the child died in the passages never can be ascertained by appearances alone. The opinion founded on them can only amount to probability. But it may take place from the several causes I have enumerated, and is so far rendered highly probable when any of these exist.

3*d*, By the child having or not having breathed. This forms a very important and difficult part of the subject, upon which much has been both said and written. The proofs of the infant having lived after birth are derived from the heart, lungs, and other organs, having performed some function after birth.

A. Of the respiratory system. The signs of the infant having breathed have long been the subject of much dispute; but such as are to be relied on are, in most cases, sufficiently distinct to establish the fact. They are the following:—

a. The *fœtal* chest and lungs differ very materially from those of the adult, or of a child that has breathed.

In the *fœtus* or still-born child, the thorax presents the appearance of being flattened and compressed. The lungs are dense,—solid,—fleshy like liver,—of a dark reddish-brown colour,—and are in a collapsed state. They are comparatively small in size; and they occupy only the upper and posterior parts of the chest. Hence they leave the heart and pericar-

dium uncovered. On examining the pulmonary vessels, they are found to contain little or no blood ; so that no blood follows the incision when they are cut into. When the whole or a portion of the lungs are cut out from the chest, they are found to sink in water, while a portion of healthy lung either from a child who has breathed, or an adult, will float. The lungs, therefore, of the foetus are specifically heavier than water ; and the proportionate weight they bear to the whole body is as 1 to 70.

By the function of respiration, the thorax of the child is augmented in size, and has an arched form and appearance ; the sternum being prominent and rather projecting. When cut open, the lungs appear dilated,—of a pale reddish or salmon colour,—and they fill up the whole cavity of the chest, and cover the lateral parts of the pericardium. The diaphragm, liver, and stomach, appear more depressed into the abdomen than the foetus, consequently the arch formed by the diaphragm is flattened. The pulmonary vessels are more filled with blood, which flows out when they are cut into. The lungs have an elastic crepitating feel to the touch ; the crepitation is also obvious when an incision is made into them, by the extrication of air from the pulmonary cells.

The changes which the lungs have undergone, by containing air and a much increased quantity of blood, which now distend the air-cells and pulmonary vessels, cause a great change in their specific gravity, and in the weight of the lungs in relation to the rest of the body. They now float in water, and are therefore specifically lighter than this fluid ; but their absolute weight, and relative weight, as compared with that of the body, have much increased. The average weight of the foetal lungs is about 2 oz. ; that of the lungs after respiration about 4 oz. The proportionate weight of the foetal lungs to that of the body is stated by Ploucquet to be 1 to 70 ; while that of the lungs which have respired is 1 to 35. By more extensive and recent experiments, this difference has been found to have been overrated ; the difference being only about one-fourth or one-fifth part in place of a half, as stated by M. Ploucquet.

TABLE shewing the difference between the proportionate weight of the lungs and body before and after respiration, according to the observations of Ploucquet, Schmitt, and Chaussier.

	Lungs that have respired, to Body.	Lungs which have not respired, to Body.
Ploucquet, . . .	1 to 35	1 to 70
Schmitt, . . .	1 to 42	1 to 52
Chaussier, . . .	1 to 39	1 to 49

The proportion must also vary according to the quantity of blood congested in the lungs that have respired.

Such are the points of difference between the form and appearance of the chest and lungs of a still-born child and one that has respired. Where these are unequivocally marked, the case can admit of no doubt. But as in several of them there are sources of ambiguity or fallacy, I shall make a few remarks on several of the most important of these.

b. Of the floating of the lungs in water. This is an old and very important test; but the various objections which have been stated to it, have given rise to much discussion, even in courts of justice at criminal trials, thereby embarrassing and perplexing judges and juries. This test has been called the *hydrostatic* test. It consists of simply putting the lungs into water; if they sink, the infant is supposed to have been still-born and never breathed; if, on the contrary, they float, it is an indication that the infant must have breathed. In the latter case a weight of about two to four ounces is required to make them sink in the water. If the lungs have respired, they are capable of floating the heart and thymus gland along with them; and the air cannot be so completely pressed out from them as to make them sink.

The objections to this test which have been urged, deserve much attention; both on account of the importance which has been attributed to this test, and because of their importance as to the guilt or innocence of the accused. One class of these objections lead to conclusions favourable to the prisoner; fallacy arising from them can therefore not impute guilt or cause

wrongful conviction. The second class of fallacies or objections are against the prisoner. Hence they should not be urged in her defence.

1st, It has been said that the lungs may sink though the child survived birth, because it may live for some time without breathing. It must certainly be admitted that such cases may happen, from the head of the child having fallen among the discharges at birth, or getting entangled with the membranes so as to prevent respiration. Or the child may have been so weak as to be unable to breathe.

In cases of this kind there is little time for a mother, worn out by labour and other circumstances, to commit murder upon her infant.

2d, This test has been objected to, because it has been said that, as the lungs are only gradually developed after birth, they may sink in water although the child may have lived. It has been asserted, on the contrary, that the lungs are capable of floating after one inspiration.

When the child dies very soon after birth, one lung, most commonly the right, is generally found more dilated than the other. But this is not a very great source of fallacy; for, if any part of the lung seems inflated, it may be cut off and its floating tried, which is quite sufficient to decide the point.

3d, It has been said that the lungs may be tubercular, œdematous, or gorged with blood, and may therefore sink in water, though the child may have lived. If the lungs are completely tuberculated, this test might be fallacious; but this is a very rare occurrence, and its fallacy might be prevented by proper precautions. By careful examination, tubercles, or a tuberculated state of the lung, will be seen, and if any portion of the lung is free from tubercles, or less tubercular than another, it is to be cut off and tried in the water.

If the lungs seem œdematous or engorged with blood, so as to prevent them from floating, although the child had breathed, the fluid may be gently pressed out, and the lung then subjected to the test. If it floats, respiration will be conclusive. Nor is this liable to fallacy; for the air which the lung may

contain, cannot be so completely pressed out by moderate pressure, as to prevent the lung from floating if it had breathed.

We come now to consider the second class of objections or fallacies which have been urged against the employment of the *hydrostatic test*.

1st, It has been said that the lungs may swim, though the infant was still-born, because it may have breathed in the uterus. This has been not only considered possible, but some who have maintained it, have even alleged that they have heard the child cry.* That the child had breathed in the womb can only be considered possible, in cases where the face presents after the membranes have been ruptured. Now the validity of this test in medico-legal cases must appear to be very slight, when we find it proved that cases of face presentation at birth occur only in one case out of three hundred. (See Ed. Med. and Surg. Journal, vol. xxxvi. p. 164.) It is, therefore, so rare an occurrence as to be highly improbable in the cases under consideration. The delivery of face presentations also, in general, requires assistance to complete them; such a case having happened, therefore, followed by delivery, without the woman calling in aid, is rendered doubly improbable.

I may also add, that the individuals who made the observations I have quoted, as to the proportion of face presentations, never heard the child cry in any of them.

2d, It has been said that the child may breathe in the passages during delivery, and thus render the lungs capable of swimming though the child be born dead. This has been considered possible by some, but not so by others. It is certainly not easy to conceive it probable, as the pressure of the parts upon the chest of the child may sufficiently prevent its feeble efforts to respire.

But when the head of the child has projected from the vagina, it has been heard to cry. In such cases the delivery of the child must take place immediately after; and possibly, though not in the least probable, the dilatation of the lungs

* This circumstance, though very extraordinary, seems to have been heard and attested by several highly respectable individuals. See Beck, p. 165.

may not have been so complete as to cause them swim in water before the child had died. (See Beck, 161-2.)

3d, The hydrostatic test has been considered liable to fallacy, because the lungs may have been inflated artificially. The validity of this objection is very questionable. It seems hardly possible that a mother could have employed artificial respiration upon her still-born infant in such circumstances, and without some apparatus for the purpose. But cases of it are said to have happened. In such cases it is necessary for the mother to prove that she did inflate the lungs of the child, and also that the child was still-born; for, I could suppose a case in which the death of the infant had been caused, by forcibly over-inflating its lungs intentionally.

The following circumstances have been pointed out as precautions upon this subject. It has been said that, when the lungs have been artificially inflated, blood is not found in the pulmonary vessels, particularly the veins. This is worthy of attention when no hæmorrhage has blanched the body. If the proportionate weight of the lungs to the body is as 1 to 35, and blood is found in them, we may conclude that they are not distended by artificial respiration. It has also been said, that the air cannot be squeezed out of the lungs after artificial respiration. This, however, is only to be relied on when the inflation has been so forcibly employed as to have ruptured the air-cells of the lungs.

4th, This test has been objected to, because the lungs may be distended by the gases evolved by putrefaction, and so float in water. This circumstance certainly may happen. But when it does occur, the rest of the body, as well as the lungs, must be in a putrid state, and emphysematous; for, after other parts have become putrid, the lungs have been found entire and undecayed, and to sink in water; from which there is reason to think that the lungs are less liable to become putrid, or, at least, are longer of becoming so than other parts of the body. This fallacy, occasioned by a putrid state of the lungs causing them to float in water, may be guarded against by the fœtid odour they emit.

5th, It has also farther been alleged, that the lungs may float from distention, by a peculiar species of emphysema, caused by protracted labour. When this has occurred, the air has not been generated by putrefaction, but was generated by the blood in the lungs. It could be easily pressed out, and the foetal density of the lungs restored.

All these objections which I have enumerated, are founded on circumstances of very rare occurrence, and, as I have shewn, may be obviated by proper attention.

c. Of the *Static* test, or that founded on the increased weight of the Lungs after respiration. This is the test which was proposed by M. Ploucquet. From what has been already mentioned regarding the difference that occurs in the increased weight of the lungs, Ploucquet remarked (but upon far too limited experience), that the relative weight of the lungs to the body, in lungs that had not respired, was 1 to 70, in lungs that had respired 1 to 35. I have shewn, however, that this proportion was very inaccurate, according to the more extensive experiments of Schmitt and Chaussier. Subsequent observations, therefore, have not confirmed the anticipations of this test. It may be valuable, however, as a corroboration to other tests.

Several objections have been urged to this, the static test, which require attention in practice. 1st, At the seventh month the weight of the lungs bears a greater ratio to that of the body than at the full time. Unless the infant, therefore, has been born at the full time, it cannot afford any decisive evidence. 2d, When the child outlived birth but a very short time, the lungs being only partially expanded, also bear a smaller proportion to the weight of the body, than if a complete dilatation of them had happened by more complete respiration. Consequently, the proportionate weight of the body will be greater or less, according to the development of the lungs. 3d, Malformation of the lungs sometimes alters their weight and relative proportion. But this occurrence will be seen and guarded against by the inspector. 4th, When a body is much ema-

ciated, it should not be applied, because, though the lungs may be about the same weight in this as in other children, yet the weight of the rest of the body will be much less ; consequently, the proportions cannot be relied on. 5th, Also, if the lung be tuberculated, this test should not be employed, but this is a very rare occurrence in such very young subjects.

In the use of this test, therefore, several precautions are necessary, but when these are properly observed, it forms a more valuable test than it is generally considered. Its employment may lead to conviction by corroborating other evidence.

The test propounded by Daniel was founded on the same principle, namely, from the *absolute* weight of the lungs. But as this varies so very much in different cases, that of the proportionate weight of the lungs to the body, as proposed by Ploucquet, is preferable.

d. The dilatation of the chest, when accurately measured, has also been proposed as a test by Daniel. This also would be too vague and uncertain to place much reliance upon ; but taken along with other circumstances, it deserves attention, for in the form of the chest there is a marked difference between those which have, and those which have not, respired.

e. The descent of the diaphragm in those children who have breathed, to an accustomed examiner, may also afford a criterion of considerable importance.

When the signs of respiration, which have been mentioned regarding the lungs, are present in a case under examination, we are not able to say decidedly that the child has breathed ; but from their absence we may infer that it has not breathed. If the lungs have a paler colour than fœtal lungs,—if they are vesicular and crepitating, without putrefaction,—and if more blood issues from them than in the fœtal state,—the conclusion is very obvious that they have breathed. But if, on the other hand, they are of a dark brown-red colour, and have not the above properties, they have not breathed.

B. Having concluded that part of the evidence of an infant having been born dead or alive, which is to be derived from the state of the Respiratory System, consisting of the lungs, chest, and diaphragm, I now proceed to that connected with the *Circulating System*.

1st, The first proof that the infant has or has not been born alive, to be derived from the Circulating System, is from the contracted state of the *Ductus arteriosus*. If the child has been born alive, and has breathed, the circulation through the ductus arteriosus will have ceased, and consequently it will be found contracted and empty. This, however, is a very slender proof to go upon. For this vessel, like other arteries of the body, will always be found contracted and empty after death. But when the child had lived some days, the vessel will be found much contracted.

2d, The next mark of infanticide to be derived from the circulating system, is that respecting the quantity of blood in the vessels. If the infant is of the natural size, and healthy looking, and if the bloodvessels are quite empty, so that the internal parts appear blanched, there is reason to suspect that the child has suffered from hæmorrhage. No very decided inference can be drawn from this appearance, but it may tend to corroborate other evidence of the child having been born alive, and suffered a violent or accidental death.

The ex-sanguined state of the body may corroborate other evidence of the death of the child by hæmorrhage from the umbilical cord. Any malformation about the heart or large bloodvessels will also be strong exculpatory evidence in any case of suspected infanticide.

C. I now proceed to consider the evidence of the infant having been born dead or alive, which is derived from the functions of the other internal organs, besides the respiratory and circulating systems.

1st, From the state of the stomach. If any foreign matter is found in the stomach, this is a strong proof of the child having lived.

2d, From the state of the liver. While the fœtus is in utero

a large quantity of its blood is sent to and circulated through the liver. But after birth, then an increased quantity is sent to the lungs, the quantity sent to the liver is diminished, consequently the liver lessens in size. Upon this, a test of the child having been born alive, has been founded.

3d, From the evacuation of meconium from the bowels. A difference of opinion exists as to the time when the evacuation of this matter takes place; some asserting it may take place before birth, others not till after. From this circumstance, as well as others connected with the evacuation of the meconium, it is not a good test to be guided by.

4th, From the state of the windpipe. This, it has been alleged, can contain frothy mucus, only if the child has breathed. But little confidence can be placed in this as a test, for there is reason to believe that some frothy mucus may be contained in the trachea, whether the child has breathed or not.

5th, From the state of the urinary bladder. It has been ascertained that the bladder contains some fluid before birth. If found empty, therefore, it has been considered a presumptive proof of the child having lived long enough to have expelled the fluid by its own efforts. But this test is liable to so many exceptions, that it should not be relied on; for, under some circumstances it may possibly have been voided before birth; while on the other hand, it may have died before having voided the fluid from the bladder.

6th, From the state of the umbilical cord. This cord, it is well known, separates from the child by a natural process of ulceration. If, therefore, the cord is ulcerated and separating, or if it is found empty, the child must have lived.

7th, The existence of food or alimentary matter of any kind in the stomach, is proof of the infant having lived after birth.

SECTION VI.

What was the Cause of the Child's Death?

I now proceed to treat of the last question I proposed to consider connected with the subject of Infanticide, namely, *What was the cause of the child's death?*

The causes which may have occasioned the child's death were formerly considered to be of minor importance, as the concealment and death of the child were considered sufficient evidence of the guilt of the prisoner. But it is now necessary, in making out a charge of concealment and child-murder, to shew that the child had actually met with a violent death, and with murderous intent ; or in other words, that it had been murdered.

A. There are several causes by which the sudden natural death of the child may have happened *during* labour. These I shall first enumerate, and then detail the most common causes of violent death.

(1.) Of the causes of natural death of the infant during labour. These are, long continued compression of the head of the fœtus in the passages,—compression of a portion of the umbilical cord,—hæmorrhage from rupture of the cord,—twisting of the cord round the neck of the infant,—a spontaneous knot forming upon the cord,—general weakness of the child. From any of these causes a child may be still-born, having died during delivery.

(2.) The causes of the violent death of infants *during labour*, are few in number, and would, in general, require the assistance of another person to accomplish them ; for the mother, particularly of a first child, is, in most cases, unable at the time of delivery to make any such exertion ; neither would she have courage so to murder her own offspring.

The violent death of infants at the period of delivery has been occasioned in two ways. 1st, By puncture of fontanelle with a needle or other sharp body ; 2d, By suffocating the infant. It might also easily be effected by the compression of the cord for a short time, if a portion of it should project from the uterus.

I have already stated that the death of the child may be accidentally occasioned during labour, by being strangled by the umbilical cord round its neck, or long continued pressure in the passages. In a case where intentional strangling is suspected, this is to be kept in view. When asphyxia has hap-

pened accidentally by the pressure of the os uteri, or twisting of the cord, the same marks will be found, if the child has breathed, as I have already detailed, when an infant has been suffocated intentionally. But if it had not breathed, these internal changes cannot be present. If it has been strangled accidentally in the manner described, the cuticle upon the neck of the child will not be ruffled, and the mark of strangling will be smooth.

B. I shall now enumerate the causes of the sudden death of infants *after* delivery.

I. Of the Causes of Natural Death in cases of suspected Infanticide.

1. *Immaturity of the Infant.*—This is to be judged of by the appearance of the infant and other circumstances which I mentioned formerly, by which the age of a fœtus is to be ascertained.

2. *Malformation of the Infant.*—Malformations may be of various kinds, but it is only those connected with the internal vital organs which can cause sudden or immediate death at birth, which concern us at present. The brain and spinal cord, as is known, are sometimes found wanting, deficient, and in a diseased state.

The lungs are sometimes transposed from their natural situation, and, consequently, may be compressed or otherwise prevented from performing their proper functions. As by part of the abdominal viscera being contained within the chest.

The malformations of the fœtal heart are of great importance in a medico-legal point of view. The ductus arteriosus sometimes remains pervious after birth, as also does the foramen ovale. This would of course prevent the pulmonary circulation and due arterialization of the blood. The septum between the ventricles is often found imperfect,—the aorta frequently arises from both ventricles,—the existence of only one auricle, though there were two ventricles, has been noticed by Haller and others,—the valves of the heart and great vessels are subject to malformations and imperfections, but more especially

the pulmonary artery, causing contraction of it.—The pericardium has been proved to be sometimes wanting by Brechet. Malpositions of the heart also, are not of very rare occurrence.

These irregularities, however, are not all necessarily fatal to life. This will depend on their nature and degree. The symptoms arising from them when they are not immediately fatal, are, frequent palpitations on slight exertions, accompanied with dyspnœa,—irregularity of the pulse,—hæmorrhages from congestion, but the extent of these is often trifling,—headach,—aberrations of mind,—torpor of the mental faculties and corporal functions,—asphyxia from the circulation of venous blood,—epilepsy,—apoplexy,—paralysis and syncope are not uncommon, and these affections are often attended with blueness or lividity of the skin.*

Transpositions and malformations of the abdominal viscera are also not uncommon; but these are not immediately fatal, unless they oppress the action of the heart or lungs, as when the liver or other viscera are situated in the chest.

3. *General weakness of the Infant.*—From this cause the infant may have died before delivery, or be unable to live after birth.

Each of these three causes of the natural and sudden death of the infant after delivery may be easily discovered, when they exist, by a careful observer. They are to be ascertained by inspection alone, and they shew the great importance not only of an accurate knowledge of the natural and healthy appearances, but also of a very careful post-mortem examination.

4. *Injury of the Head from a blow by an accidental fall upon the ground.*—Some women when accused of infanticide have accounted for marks of injury on the child's head, by alleging that it fell upon the ground, by labour and delivery having taken place very suddenly before they got to bed. Upon this subject some experiments have been made by Chaussier, by which he ascertained, that when the body of an infant is let fall from a height, equal to that of the uterus when a woman is standing, fracture of the parietal bones, and sometimes of the os frontis, takes place, attended with some contusion of the

* See Thesis by Dr Paget, Edinburgh, 1831.

scalp. When there is other evidence, therefore, of such an accident having happened, it is sufficient to account for the child's death. But it is also to be recollected, that fracture, with depression of the bones of the head, may happen from great squeezing and pressure upon the head during laborious parturition. If such injury was caused upon the head as proved fatal, it is not likely that the infant ever breathed. If the infant, therefore, has upon it signs of having breathed, the injury upon the head was most probably by design after birth.

5. *By asphyxia*, in consequence of the mouth and nostrils falling into the discharges from the uterus, or being entangled with the membranes. In cases of this kind, there will be other marks of asphyxia, and some of these foreign matters found in the mouth. But it may also have been smothered, without any marks of this being detected by the medical examiner. Thus asphyxia by overlaying is easy, and it is difficult of detection. But in most cases of child-murder, much more violence is employed to accomplish it than is necessary ; so that, in general, abundant marks of it are to be found on examination.

6. The *sixth* cause of sudden death after delivery I have to mention is, *Hæmorrhage from rupture or division of the navel string*. When this has happened, there will be a blanching paleness and want of blood in the body, both externally and internally. When the cord has been torn across, it does not always present ragged ends.*

7. The death of the infant has also happened from a knot on the umbilical cord, in consequence of the child having passed through a coil of it during labour. This can only happen when the cord is very long, and there will be no marks of the child having breathed, as it could not have lived after birth. Several cases of this are on record, one by Dr Smellie, another by Dr Hosach. The premature tying and division of the cord may also occasion the death of the infant.

8. The child may die suddenly from convulsions, and no morbid appearance may be discovered.

9. *Introsusceptio* may also cause sudden death, but it will be ascertained by careful dissection.

* See Med. and Phys. Jour. vol. viii.

II. *Of the causes of violent death of the infant, in cases of suspected Child-murder.*—These have been divided by medical jurists into those of *omission* and *commission*. These causes, though equally fatal to the infant, are not alike culpable; for unless the causes of omission have been obviously intended to occasion the death of the child, the case comes under those of concealment with neglect to call for assistance at the birth.

A. *Of the Causes by Omission.*—1. The death of the child may be caused by omitting to remove it from under the bed-clothes. By being in the supine position, and by the exclusion of the mouth and nostrils by the contact of the bed-clothes—lying with the face downwards among the discharges, or having the face covered with the membranes. By any of these ways the suffocation of the infant may happen, with or without any criminal design. In all such cases the circumstantial evidence as to the intent of the mother, must decide as to her criminality.

In many such cases the death is hardly to be attributed to the mother, who cannot at that time be expected to do any thing for her child.

2. *By omitting to keep the Infant warm.*—It is needless for me to speak of the necessity there is for keeping an infant warm. This is universally well known. By want of due warmth a child may die; if this has happened from ignorance or want of proper means on the part of the mother, her criminality of course will be less than if it had obviously been caused by design; such as in cases when an infant has been exposed and deserted in such a situation that it is certain to die, in which case she would be guilty of murder. If the child was exposed and killed accidentally, as upon a high road at night, she would be guilty of murder. (*Humé.*)

It may be a very nice question for us to decide whether the child has died from cold by the exposure, or had been exposed after death. If the body is found stiff,—shrivelled and naked, or imperfectly covered in a cold place,—and if, upon examination, we find that the lungs had respired, and that the internal vessels are gorged with blood, while those on the surface are empty, and when no other cause can be found to account for its death, it is to be ascribed to the exposure to the cold.

It has been found that by leaving a child alone lying on its back, even without exposure to cold or accident, death may be caused by accumulation of mucus in the throat.

3. *By omitting to tie the Umbilical Cord.*—The necessity of tying this cord in the infant at birth, has been disputed by some of the most eminent physiologists. But the arguments to prove it unnecessary are by no means conclusive. Its not being required in the lower animals, is to be explained by the difference in the structure of the cord. “Every practitioner in midwifery,” says Dr Burns, “can testify the danger and almost certainly fatal effects from neglecting to tie this cord.” When the cord is torn across, no hæmorrhage takes place, as we see happen in such a division of large arteries in other parts of the body. But when it is cut, it then bleeds, this is probably the best explanation of what occurs; but it is not very material, as we cannot say that death has taken place from hæmorrhage, merely because the cord was not tied.

When fatal hæmorrhage takes place from this cause, it is to be suspected when the cord has not been tied; and by dissection, if the veins and heart as well as the arteries are empty, the suspicion will be confirmed. If, therefore, it can be proved that this precaution was wilfully neglected, the intentional destruction of the child may be fairly imputed. In some instances, however, it may result from ignorance, as in cases of first pregnancy, where the mother might be completely ignorant of its importance. But cases of accidental death in this way must be of rare occurrence, as the cord does not bleed if torn across; and if the mother has cut the cord she might at the same time have tied it. If she had prepared an instrument to cut the cord, she might have also prepared a ligature to tie it. As the cord may have been tied after death by hæmorrhage from it, the exsanguification of the body forms an important part of the evidence.

4. *By omitting to give the Child Nourishment.*—It is not easy to say how long a child may live without getting nourishment. Foderé says it cannot be neglected for twenty-four hours without danger. Death from this cause, the same author says, is known by the general emaciation of the body,—the fœtid pun-

gent odour which exhales from it,—the eyes being open and of a red colour,—the intestines completely empty,—gall-bladder enlarged,—bile in stomach and intestines,—the lungs contracted,—the viscera otherwise in a sound condition.

B. Of the Causes of Death of the Infant by Commission.—

The causes of infanticide by commission include all kinds of violence, such as suffocation,—dislocation of the neck,—injuries of the head, &c. Upon such of these as are most common or most remarkable, I shall make a few observations.

There is nothing more easy than the murder of a new born child, without leaving any mark or trace of violence having been employed. You must, therefore, be guarded in the opinion you give in any suspected case. For, it cannot be said, that because there was no mark of violence, the child has not been murdered. A case of child-murder happened a few years ago at Perth by putting the child into a writing-desk, in which it was confined and suffocated, yet there was no mark of violence upon it. In such cases the moral or general evidence alone must be trusted to. It is often a very material point, however, in convicting a prisoner of child-murder, to discover no morbid appearances to account for the child's death; more especially when a particular cause of death has been alleged by the prisoner, which, if true, would have left traces in the dead body. If no appearances sufficient to account for the natural death of the child are found, this circumstance would very much strengthen the evidence of death by smothering, hanging, drowning, strangling, or the like, where the marks of violence are in some cases very slight.

It is to be recollected, however, that a stout child may die accidentally without any morbid appearances being seen upon it. The death of an infant may also occur in two ways by violence, where no traces of it are afterwards to be discovered. *1st*, By asphyxia, or suffocation; *2d*, By contusions or repeated strokes on the back producing concussion.

1st, The first cause of child-murder by commission I shall notice is by producing asphyxia or suffocation. Under this head may be included, smothering—hanging—strangling, and drowning.

Smothering may be occasioned by keeping the infant closely confined among the bed-clothes, or by keeping its face down among the discharges, &c. Upon inspection, the usual marks of suffocation, namely, lividity of the face and ears, the tongue swollen and projecting, mouth frothy, the veins filled with blood, lungs presenting signs of having respired, some parts livid, and covered with ecchymosed spots.

Hanging or strangling is to be discovered by the same appearances, with the addition of marks upon the neck, either from a cord or other means which had been used. Where a child has been suffocated by stuffing its mouth and nostrils, or throat, the same signs are to be looked for, and some of the foreign matter will probably be discovered in the air-passages.

Drowning is to be discovered by the same appearances also, which are nearly the same with those I formerly detailed when treating of the subjects of drowning, &c. in the adult. But when a child is found immersed in water, it is an important question, as in the case of an adult, Whether the child had been drowned, or thrown into the water after death? The solution of this question is to be accomplished by the considerations which were formerly explained, and which I need not therefore now repeat. (See Chapter vii.)

In some cases of infanticide by suffocation, it may be urged in defence of the prisoner, that the death of the child may have happened, by its having been accidentally strangled by the twisting of the umbilical cord around the neck, and consequently appearances similar to those above described, produced. Though such cases have happened, they are of very rare occurrence, and could only occur where the cord is of an extraordinary length. The state of the lungs also, will tend to decide such cases; for where the child has been spontaneously strangled in the manner I have described, there will be no evidence of the lungs having respired. If, on the contrary, the lungs have obviously respired, this supposition is quite untenable. In cases of intentional suffocation, too, marks of violence in the form of ecchymosis, or ruffling of the skin of the neck, may be discovered, which could not have been produced by the pressure of the umbilical cord.

Suffocation by throwing infants into privies, is not uncommon. In such cases, murder could not be imputed, without strong moral evidence of the crime. For, the female accused might say, that the child had fallen into it, by sudden unexpected delivery when she was at the privy. By inquiry, however, into particulars, indications might be found shewing that delivery could not have taken place as she described.

The inhalation of liquor amnii by the infant, is said to be another way in which it might be suffocated ; and if this were mixed with meconium, it might produce indications, similar to those produced by the child having been thrown into a privy.

2d, By Wounds and Bruises. The effects of wounds and bruises upon the infant, are of course similar to those upon the adult, but at that tender age are more easily inflicted, and more fatal in their effects. Contusions upon the head must not be confounded with such swellings of the scalp as are frequently produced by protracted labours. In appearance these very much resemble each other, so their cause must be determined by other circumstances ; such as the nature of the labour, the size, regularity, or deformity of the pelvis, the size of the child's head, and the nature of the injury. If the skull is much fractured, this injury cannot have taken place during labour, from the provisions of nature to admit of the bones overlapping each other. In cases of murder, the injury will in general be greater than that produced either by an accidental fall or compression.

Punctured wounds of the brain, inflicted by a needle or sharp instrument, through the fontanel, when the head is presenting at the external parts, have been frequently practised. Such wounds are to be discovered by shaving the head, when some ecchymosis around it will be found, and the wound penetrating into the substance of the brain.

Punctured wounds are sometimes made in other parts also ; as the temples, inner canthus of the eye, neck, thorax in the region of the heart, and into the abdomen. These cases require very minute investigation ; and when, from the situation of the wound, it is evident that it must have been inflicted after delivery, particular attention must be paid to the state of the

lungs, as to indications of the child having breathed, which would form a strong corroboration.

In examining all cases of death from injuries, you must attend to the same general rules which I inculcated when treating of death by injuries in the adults, taking care not to confound them with other appearances, such as putrefaction.

Infanticide has also been occasioned by the introduction of sharp instruments into the natural openings of the body. (See case which occurred at Guernsey, Ed. Med. and Surg. Journal, in which there was a wound of the mouth and rectum.)

3d, By twisting the Head on the Neck. This to be discovered by the marks of injury and laceration at the upper cervical vertebra, and of the spinal cord.

4th, By burning or scalding by Hot Water, in which case the accused has pretended it was used for a bath.

5th, Turning back the Tongue into the trachea, by dividing the frenum linguæ, in which case an incision will be found. If it is alleged to have happened by being torn by the child sucking, ascertain if it really has sucked; if not, it is just to conclude that it must have been caused by criminal interference.

From what has been said on the subject of infanticide, it is obvious that numerous natural causes may have occasioned the child's death, without either negligence or criminal design; some indications shew that the child obviously died from negligence, either wilful or from ignorance, and by others the death of the child can be proved to have arisen from violence inflicted with murderous intent.

I have explained the importance, and the weight to be attached to the investigations and evidence of the medical jurist; the sources of fallacy to which these are liable; the circumstances which militate both for and against the accused; and the circumstances which should make the medical examiner exercise caution, both in forming and in giving an opinion upon any case that may come under his notice.

But though much important light may, by medical investigation, be thrown upon the cause of the child's death, either for or against a person accused of infanticide, yet much will de-

pend, in establishing her guilt or innocence, upon the circumstantial evidence connected with each individual case. And although this does not strictly belong to medical inquiry, yet there are some points of it, concerning which the opinion of the medical jurist may be required.

In the first place, it may be urged for the prisoner that she might have been ignorant of her pregnancy,—suddenly taken in labour,—and might not have been in circumstances to command assistance, in consequence of which the child had been lost. In answer to this, it may be said, that however difficult it may be for a physician to say positively that a woman is pregnant or not, yet it is not easy to suppose that a woman can herself be ignorant of her state. After yielding to the solicitations of a seducer, the changes and feelings she must experience during pregnancy, can neither be concealed from her notice, nor mistaken. In cases of first pregnancy it is not probable, but much the contrary, that delivery could take place so suddenly, as to prevent the possibility of obtaining assistance; because the dilatation of the passages takes place slowly. In future pregnancies this is possible, particularly if the child is of small dimensions. This point, therefore, requires inquiry, as well as the position of the female at the time of delivery.

I shall now conclude this subject by detailing a few cases for the purposes of illustration.

CASE 218.—Mary Woodend was tried at Carlisle, August 8. 1832, for child-murder and concealment of the birth.

A well grown male infant was found in the river, with some coagulated blood near it, where the prisoner confessed to one of the witnesses she had thrown the child.

The surgeon who examined the body said that the navel string had been cut, but was not tied. There was the mark of a piece of tape or riband round the neck, beneath which there was a quantity of *extravasated blood*. The lungs were not dark coloured, but had a mottled appearance,—were spongy and floated in water. He thought the child had been born alive.

Upon a cross-examination, he said it was possible the child might have breathed, and yet not been born alive. That the na-

vel string may have been twisted round the neck, and produced the extravasation of blood.

On the night the child was born, a cousin of the prisoner had slept in the room with her, and was ignorant of what had happened. She did not hear an infant cry.

The Judge very properly said, there were here two questions for the consideration of the jury. *1st*, Had the child been born alive? *2d*, Had it met with death in consequence of violence administered by the prisoner? From the evidence of the surgeon it appeared, that, though it had breathed, it might have died for want of assistance; and that the mark on the neck might have been occasioned by an accident, which sometimes happened in delivery. This was strengthened by the child not having been heard to cry, by the person who slept in the room with the prisoner.

The prisoner was accordingly acquitted of the murder, but found guilty of concealment of the birth.

Could the navel string have caused such a mark and extravasation of blood upon the neck? I presume not.

The child might not have been allowed to cry by the mother, or some person who had cut the cord; and it might have been strangled by a ligature round the neck.

The cousin probably told a falsehood, as to her ignorance of what had happened.

CASE 219.—Elizabeth Griffin, æt. 16, was tried at Newcastle, July 29. 1831, for the murder of her female natural child. She lived with her father and sister. Her neighbours had for some time previously suspected the prisoner to be pregnant. Early in the morning of the 9th March, her next neighbour heard moaning, as if there was very serious illness in the house. This woman went at nine o'clock to the door, which was opened by the girl's father, and inquired if any one was ill, for she had heard so much moaning; to which he replied, that "Eliza had been ill, but was better again." The woman went in and found the girl sitting by the fireside, loosely dressed, and seemingly in a very weak state. Upon interrogating her, she said she had been ill during the night, but was now better. The woman charged her with having been in labour, which the prisoner de-

nied, and said nothing had ailed her but what was common to all women. She then admitted so much as to say, "Well, if I have to bear a child, you had better let me bear it." In the mean time her sister, who had been sent for a doctor, came in crying. Witness said she might well cry, for there was a report that "a child had been born and made away with." Witness with several other women then searched the house, and, in a closet, a box was found, concealed under a tub, containing a dead full grown female child, which had never been washed. It felt a little warm, and had a mark on each side of its throat, as also a swelling on its temple. This statement was confirmed by other three females who had been present.

Mr Charles Halzell, a surgeon at Newcastle, saw the prisoner on the evening of the 9th, when she presented the appearance of having been recently delivered, and was in a low weak state. He examined the child next day. He found marks of violence on each side of the throat, and on each temple. The pharynx was so torn, that he was convinced it had been caused by violence applied inside the mouth. Both of the parietal bones were fractured. The dura mater was lacerated, and blood extravasated on the brain. Coagulated blood was also found on both sides of the throat. He conceived that much violence must have been employed to have produced these injuries. From the appearance of these injuries, and of the lungs, he thought that the child must have been born alive; but could not say whether the injuries had been inflicted before or immediately after death: they could not have been occasioned by a fall to the ground.

The prisoner, in her defence, said she had not been aware of her pregnancy; that feeling great pain in the course of the night, which she ascribed to another cause, she got up to go to the closet. She added that, when stepping across the floor, she had given birth to the child, and had put it into the box till her sister should come.

Mr Justice Parke very properly said to the jury, that, before finding the prisoner guilty of murder, they must be satisfied on three points—1st, That the child had been born alive;

2d, That it had come to death by violence; 3d, That the fatal violence had been inflicted by the prisoner.

The jury returned a verdict of *Not guilty*; neither could they find her guilty of the alternate charge of concealment of the birth, for her father and sister seemed to have known her situation.

In this case the injuries of the head and throat were not accounted for by the prisoner,—they could not have occurred by accident, and hence the only other inference, of their having been caused by design.

CASE 220.—Elizabeth Brown, æt. sixteen, servant to a farmer, was tried at Edinburgh, 16th March 1837, for infanticide and concealment of pregnancy. On the 13th of January preceding, she had clandestinely brought forth a male child, in a byre containing a number of cows under her charge. For some time previously, she had been suspected of being pregnant, but denied it when she was asked. Her belly, which had previously appeared to be large, suddenly became lessened in size on the day of her delivery. At night she confessed to her mother what had happened, and told her where the body of the infant was concealed. When found, it was covered over with cow's dung; it was then washed, and sent away for burial. Dr Craigmie and I made an inspection of it by request of the Sheriff.

We found the body to be that of a newly-born male infant, but of such a size and weight, that we were of opinion, though it must have been born later than the seventh month of uterogestation, it might have been born at less than nine months.

The lips of the child were red, not livid. The surface of the body, generally, was of a reddish colour.

On the skin of the neck there were several scratches and superficial red marks, accompanied with abrasion of the cuticle. Above the left ear there was the mark of a contusion. Under the scalp there was an uniform layer of coagulated blood, which covered the upper surface of the cranium. Both parietal bones were much fractured; the collar bone was also fractured, and there was extravasated blood at the broken parts. Upon removing the upper part of the skull, the surface of the brain was found to be coated with extravasated blood, and some was also contained in the ventricles.

The lungs were of a light florid colour, contained air, were soft, crepitating, and floated in water, even with the trachea, thymus gland, and heart attached to them. They had no putrid smell, and we had no reason to suppose that air had been blown into them.

There was almost no blood in the heart or large vessels. The viscera were all healthy in appearance.

From these circumstances we inferred, *first*, That the infant had been born alive, and had breathed ; *second*, That violence had been inflicted upon the head during life, sufficient to have proved fatal.

We also examined the reputed mother of this infant, and found upon her the usual marks of recent delivery.

But it became a question of importance for us to determine, Whether or not the injuries upon the infant could have been produced by any accident at delivery, supposing this to have taken place without assistance. We conceived such an event to be possible, by the infant having fallen forcibly on a hard floor or hard body, if the mother had been standing at the time. But even in this case it is difficult to conceive how the infant could have breathed after such an injury, if it had not done so previously. The same difficulty applies to the possibility of the injury of the head having occurred by compression in the passages, unless the child's face presented ; in which case some have asserted that an infant can breathe or even cry. But where the face presents, labour is not only tedious and difficult, but the manual assistance of the accoucheur is required to turn the infant.

In this case, then, the extensive fractures were not likely to have taken place by a *fall* on the crown of the head in delivery ; and it is also very improbable, though perhaps not impossible, that they happened from *pressure* in the passages, both on account of the small size of the child, and the provision of nature for preventing such injuries. Neither is it probable that the injuries occurred after death in secreting the infant, on account of the extensive ecchymosis which existed.

In consequence, I believe, of these doubts and difficulties, the absence of direct evidence of injury inflicted by the prisoner, and a confession of concealment of pregnancy, the pub-

lic prosecutor agreed to accept of a plea of guilt as to the concealment. The prisoner was therefore only sentenced to imprisonment.

These cases shew the difficulty there is in establishing a charge of child-murder. They also shew the truth of the observation, that, in general, much greater injury is inflicted than is necessary to accomplish the death of the infant.

“ In cases of child-murder at common law,” says Mr Alison, in his *Principles of Criminal Law*, p. 158, “ stronger evidence of *intentional* violence will be required than in other cases, it being established by experience that in cases of illegitimate birth, the mother, in the agonies of pain or despair, is sometimes the cause of the death of her offspring, without any intention of committing such a crime.” Under such circumstances various accidents may happen in delivery, producing the appearance of premeditated violence where none was really used.

CASE 221.—Margaret Macintyre and Marjory Lennox, a mother and daughter, were tried at Glasgow in 1829, for the murder of the infant of the latter, and the alternative charge of concealment of pregnancy against the daughter.

It appeared, in evidence, that no other person, except the pannels, was present at the delivery of the daughter ; and the daughter declining to give evidence against her parent, the case rested entirely on the appearances and disposal of the infant. No assistance had been called at the birth, the pregnancy had been concealed, and the body of the infant was found some days after, buried in the garden of the cottage where the prisoners lived.

Upon inspection of the body of the infant, it was found to have been born alive ; considerable marks of violence were discovered on the neck, and small pieces of straw, similar to that in the bed where the birth took place, were found in the throat and stomach. When the discovery of the body took place, the mother absconded, and was some weeks in concealment. It seemed, therefore, highly probable that the child had been

murdered ; but from the circumstances of the case, it did not appear which of the pannels had been guilty of the act, or that there had been any concert between them ; and as the straw might possibly have been forced into the throat in the agonies of unassisted birth, the Court recommended an acquittal as to the charge of murder. The daughter, however, was found guilty of concealment of pregnancy.

CASE 222.—Catharine Butler or Anderson, was tried at Aberdeen in 1829, for the murder of her natural child. “ It there appeared that the dead body of a child was thrown ashore by the river Deveron, a short way below Huntly. A few days before, the pannel was delivered of the child at Inverury, on the road to Aberdeen. Two days before it was discovered, she set out from Inverury to return to Huntly, with the child on her back, alive and well ; and she was seen, with the child alive, proceeding on the road a few hours after, within nine miles of Huntly. Some persons who afterwards saw her on the road, observed that she had only a small bundle in her hand, much smaller than a child, and she arrived with such a bundle at her own house. A report having got up that she had made away with her child, the officers came to her house : she at first offered to produce it, and said they would find it in a cellar below the house ; afterwards she said she could not tell where it was, and made light of what had happened, saying she had done no more than many, married and unmarried, had done before her. In her first declaration she said she was delivered near Aberdeen, and gave her child to a beggar-woman, and never saw it again ; in her second, that it died of cold on the road from Inverury to Huntly, and that she threw it into the Deveron, and that the child there found was her’s. It was proved to have been so by the witnesses who saw its dress at Inverury, and recognised the articles found on the child in the river. On the other hand, it appeared that the pannel had been kind to her child at Inverury, and that it was a cold day, with showers of sleet, when she was on the road, and that the infant might easily have perished of cold on its mother’s back. In these circumstances there were the highest grounds of suspicion against the pannel ; but on the principle that there was

no decisive evidence that the death was not owing to natural causes, and that the subsequent concealment and false stories might have arisen from the desire to conceal an illegitimate birth, not to cover a murder, Lord Mackenzie directed an acquittal."

"One thing is very remarkable," continues Mr Alison, "and occurs in most cases of concealment and child-murder, viz. the strength and capability for exertion evinced by women in the inferior ranks shortly after childbirth—appearances so totally different from those exhibited in the higher orders, that, to persons acquainted only with cases among the latter, they would appear incredible. In the case just mentioned, the mother, two or three days after her delivery, walked from Inverury to Huntly, a distance of twenty-eight miles, in a single day, with her child on her back. Similar occurrences daily are proved in cases of this description. It is not unusual to find women engaged in reaping retire to a little distance, effect their delivery by themselves, return to their fellow-labourers, and go on with their work during the remainder of the day, without any other change of appearance but looking a little paler and thinner. Such a fact occurred in the case of Jean Smith, Ayr, spring 1824. Again, in the case of Ann Macdougall, Aberdeen, spring 1823, it appeared that the pannel, who was sleeping in bed with two other servants, rose, was delivered, and returned to bed, without any of them being conscious of what had occurred. Instances have even occurred in which women have walked six and eight miles on the very day of their delivery, without any sensible inconvenience. Many respectable medical practitioners, judging from what they have observed among the higher ranks, would pronounce such facts impossible; but they occur so frequently among the labouring classes as to form a point worthy of knowledge in criminal jurisprudence; and to render perfectly credible what is said of the female American Indians, that they fall behind for a little, on their journeys through the forests, deliver themselves, and shortly make up to their husbands, and continue their journey with their offspring on their back."*

* Alison's Principles of Criminal Law, p. 160.

CHAPTER XII.

OF THE EXCULPATORY PLEA OF INSANITY IN CASES OF
HOMICIDE.*Preliminary Remarks.*

HAVING already treated of the other exculpatory pleas (in Chapter IX.) which may be urged on the part of those charged with homicide, I now proceed to treat of that of INSANITY.

Homicide is not unfrequently committed by the imbecile and insane ; and as this state of mind absolves the individual from punishment, it is, in many cases, urged in exculpation,—when reference is often made to the medical jurist for his opinion as to the condition of the prisoner's mind.

It is unnecessary, as it would be out of place, to enter into a full account of Insanity here. All that I propose, therefore, is, to state the nature and degree of mental alienation which is required by law, in order to exculpate those charged with homicide, or prevent them from suffering the punishment attached to their crime. I shall then illustrate the subject with a few cases, accompanied with practical remarks.

SECTION I.

*On the Kind and Degree of Insanity which the Law requires
for the Exculpation of Criminals.*

Before commenting on the different forms and degrees which insanity assumes, it will be useful to lay before the reader the kind and degree of this malady which the law requires for the

exculpation of criminals ; and, in the first place, I quote from the work of Baron Hume, which is considered the chief authority in Scotland.

“ We may next,” says Baron Hume, “ attend to the case of those unfortunate persons who have to plead the miserable defence of idiocy or insanity ; which condition, if it is not an assumed or imperfect, but a genuine and thorough insanity, and is proved by the testimony of intelligent witnesses, makes the act like that of an infant, and equally bestows the privileges of an entire exemption from any manner of pain. ‘ *Cum alterum innocentia concilii tuetur, alterum fati infelicitas excusat.*’ ” “ I say,” he continues, “ where the insanity is absolute and duly proved ; for if reason and humanity enforce the plea in these circumstances, it is no less necessary to observe such a caution and reserve in applying the law, as shall hinder it from being understood, that there is any privilege in a case of mere weakness of intellect, or a strange and moody humour, or a crazy and capricious, or an irritable temper. In none of these situations does, or can, the law excuse the offender ; because such constitutions are not exclusive of a competent understanding of the true state of the circumstances in which the deed is done, nor of the subsistence of some steady and evil passion grounded in those circumstances, and directed to a certain object. To serve the purpose, therefore, of a defence in law, the disorder must amount to an absolute alienation of reason, ‘ *ut continua mentis alienatione, omni intellectu careat,*’—such a disease as deprives the patient of the knowledge of the true aspect and position of things about him,—hinders him from distinguishing friend or foe,—and gives him up to the impulse of his own dis-tempered fancy.”

In England the law is founded precisely on the same principles.*

From what has been said, it is obvious that the law admits of no defence short of an absolute alienation of reason ; so that the pannel must prove, that when the crime charged was committed, he was so furious, mad, and distracted, as to be totally deprived of his reason and understanding.

* Alison's Principles of Criminal Law.

These principles are exemplified in the case of Thomas Gray, tried July 26. 1773. "This man was indicted for murder by stabbing. It was alleged for him that he was of a very weak intellect, subject to sudden gusts of passion, addicted to the excessive drinking of strong liquors, and on the whole, owing to these several infirmities, rather a sort of fool or crazy person, and so considered by his neighbours, than a sound man. This account was confirmed by the witnesses upon the trial, several of whom swore to his being drunk when he stabbed, and that he was at all times a weak and a passionate creature, and especially (as they expressed it) "on the woodith order when he got drunk.'" All this, was, however, plainly short of madness in the sense of law, and the jury therefore found him *guilty* of the murder. (*Hume.*) In several cases similar to this, where there was a degree of weak and crazy intellect, the prisoners were recommended on that account to the mercy of the Court.

In cases of murder, and other great crimes, this plea is perhaps more easily established to the satisfaction of a jury, than when it is set up against those of a less degree of enormity, such as theft or forgery, where a certain degree of art and perseverance are necessary for their execution. But, when the crime is robbery or theft along with murder, it will with more difficulty be established, than in cases of murder without such an accompaniment, unless an ungovernable propensity to theft has shewn itself as a symptom of the disorder.

In cases of *doubtful insanity*, where it is pleaded in exculpation of great crimes, besides the leaning to the side of mercy, and in favour of the pannel, which the law requires and humanity dictates, the alternative fate of the criminal, which is confinement for life, may in some degree justify a stronger leaning to the side of the insanity of the prisoner, than if he were to be acquitted.

"Although, to establish a valid plea of insanity, the law requires that it be absolute in degree, it is not necessary that it be continued in respect of time or duration. For the quality of the deed depends entirely on the man's state of mind at the time he does it; so that whether his malady is constant and unremitting, or only returns at intervals, still his defence shall

be equally available, if he was then utterly furious and void of reason." This was exemplified in several cases ; in that " of Sir Archibald Kinloch, June 29. 1795, who, having had his senses injured by the acute delirium of a West India fever, was afterwards liable to occasional fits of derangement of mind, though at considerable intervals, and at length, in a state of utter fury, had the misfortune to kill his brother. This violent fit of distemper had lasted only for a few days, and soon after the fact, he settled into his ordinary condition. The jury were nevertheless unanimous in acquitting him." He was confined for life.

CASE 223.—In the case of Charles Campbell, also, tried at Glasgow, April 1826 ; Campbell had, at different times before the murder, shewn symptoms of insanity, and was considered by his fellow-workmen to be of crazy and disordered intellect. He was slighted by his wife, who drew up with other men. On one occasion he found her dancing and behaving improperly with other men, which, together with scornful language, irritated him so much, that he stabbed her in the neck, and inflicted a mortal wound in the *arteria innominata*. (See Case No. 75.) Temporary madness and fury were established. He was so far acquitted as to be confined for life, but he never afterwards shewed symptoms of insanity. He had got a good education, and had rather superior talents. He wrote an account of his own life during his confinement, and after the lapse of two years he was transported. In another case, that of Robert Spence, tried June 19. 1747, insanity at the time of the murder was proved, and he was accordingly imprisoned for life. Also in that of Jean Blair, 14th March 1781, the result was the same. " This woman, in a sudden fit of frenzy, had, with a hatchet, cruelly mangled and killed her mistress, with whom she had lived some years as a confidential servant, and then after setting fire to the house, and breaking the furniture, she ran out stark naked, and with her bloody hands, into the street, and gave the alarm of fire to the guard. It was proved that several of her family had been insane, and that she herself had shewn symptoms of derangement about ten years before. She

was acquitted of the *murder*, and was ordered into confinement. (*Hume.*)

Another case of a similar description was that of Robert Thomson, tried for murder in June 1739. See Alison, p. 647. See also cases of James Cummings, p. 651, and William Gates, p. 653, Coalston, p. 649, and others.

In treating of temporary insanity from intoxication, Baron Hume mentions several cases (Cummings, Gates, and Hoskins,) where the pannels had the good fortune to obtain a verdict in their favour, finding that the crime was done "in a temporary fit of insanity." "On the whole," adds Baron Hume, "I cannot but think it questionable, whether an assize do right when they sustain the plea of this lower degree of infirmity of mind, exasperated only into a short fit of outrage and fury, by excess of liquor; or when they receive as evidence of madness, the brutality and atrocity of the act itself that is done, though there has been no previous symptom or character of disease. That weakness, or rather vice of disposition, which consists in the want of the ordinary command of temper, is a thing quite distinct from *alienation of reason*, which alone is *insanity* in the estimation of law, or can safely be received as an excuse from punishment. To teach men to withstand the impulse of sudden rage, is one great object of criminal justice, and a person cannot be considered as incapable of this discipline, who lives at large, as a member of society, and gains his bread by the exercise of an ordinary profession."

Lord Erskine said at Hadfield's trial, "Delusion, where there is no frenzy or raving madness, is the true character of insanity. In civil cases the law avoids every act of the lunatic during the period of his lunacy, although the delusion may be extremely circumscribed; although the mind may be quite sound in all that is not within the shades of the partial eclipse; and although the act to be avoided can in no way be connected with the influence of the insanity; but to deliver a lunatic from responsibility from criminal justice, the relation between the disease and the act should be apparent."

"Extraordinary instances of insanity, on particular subjects, with apparent general sanity, have occurred. A person in-

dicted his brother for having confined him as a lunatic. The prosecutor was himself examined, and stood a very long cross-examination by the very able counsel, Mr Erskine, who, not being furnished with the clew, could extort no symptom of insanity. At length the medical person who had attended him, furnished the clew, and his disorder immediately appeared, for he said, ‘*I am the Christ!*’ ”

Wood’s case, before Lord Mansfield, and related upon his authority, is still more extraordinary. Wood twice indicted Dr Monro for false imprisonment in a mad-house. On the first trial, though not till after a long cross-examination without success, yet on the clew being furnished by Dr Battie, his insanity instantly became apparent. The subject of the delusion was corresponding with a princess in cherry juice. Wood again indicted Dr Monro, knowing that he had lost his former cause by speaking of the princess ; “ and such,” said Lord Mansfield, “ is the extraordinary subtilty and cunning of madmen, that when he was cross-examined on the trial in London, as he had successfully been before, in order to expose his madness, all the ingenuity of the bar, and all the authority of the court, could not make him say a single word on that topic, which had put an end to the indictment before ; although he still had the same indelible impression upon his mind, as he signified to those who were near him ; but conscious that the delusion had occasioned his defeat at Westminster, he obstinately persisted in holding it back.” (*See Howel’s State Trials.*)

SECTION II.

On Idiocy, and the different Forms and Degrees of Insanity, in their relation to Medico-legal Cases of Homicide.

Under the general term of Insanity are comprehended not only derangements of the moral and intellectual faculties, but also imbecility and idiocy.

By the industry, acuteness, and accurate observation of physicians, both in our own country and on the continent, our knowledge of the different forms of insanity and idiocy has been

much improved and extended. In consequence of this, much light has been thrown upon the medico-legal questions relating to insanity ; but particularly that connected with homicide.

From some particular forms of insanity having of late been more accurately determined and distinguished than formerly, the definitions of the disease have been modified and extended, and have become more precise.

The following are the definitions of the different forms of insanity given by a late intelligent writer on the subject, Dr Prichard.* As they are simple and convenient for practical purposes, and accord with my own observations, I shall adopt them here. Under these, all cases of disordered intellect may be included, except those of imbecility and idiocy, which are considered separately and distinct from insanity.

By this arrangement, the morbid states of the mind are comprehended in five divisions, consisting of different modifications of diseased or disordered mind.

1. “ *Moral Insanity*, or madness, consisting of a morbid perversion of the natural feelings, affections, inclinations, temper, habits, moral dispositions, and natural impulses, without any remarkable disorder or defect of the intellect, or knowing and reasoning faculties, and particularly without any insane illusion or hallucination.”

The three following are modifications of *Intellectual Insanity*.

2. “ *Monomania*, or partial insanity, in which the understanding is partially disordered or under the influence of some particular illusion, referring to one subject, and involving one train of ideas, while the intellectual powers appear, when exercised on other subjects, to be in a great measure unimpaired.”

3. “ *Mania*, or raving madness, in which the understanding is generally deranged ; the reasoning faculty, if not lost, is confused and disturbed in its exercise ; the mind is in a state of morbid excitement, and the individual talks absurdly on every subject to which his thoughts are momentarily directed.”

4. “ *Incoherence* or dementia, consisting of a rapid succession or uninterrupted alternation of insulated ideas, and evanescent

* Treatise on Insanity, London 1835. Also Cyclopædia of Practical Med. article Insanity.

and unconnected emotions ; continually repeated acts of extravagance ; complete forgetfulness of every previous state ; diminished sensibility to external impressions ; abolition of the faculty of judgment ; perpetual activity." To these may be added,—

5. *Idiocy and Imbecility, or Mental deficiency.*—This is a state in which the mental faculties are wanting from birth, and have not been manifested at the usual time of their development. It is to be distinguished from that state of fatuity which takes place from disease or protracted age. Idiocy has been divided into two degrees ; the one where it is complete, the other where it is imperfect,—the intellectual faculties not being wholly wanting. This is termed *imbecility*.

It is not my intention to remark at length on each of these forms of mental disease and deficiency. The 2d, 3d, and 4th are of frequent occurrence, and are, in general, easily detected ; but the 1st, or moral insanity, though not uncommon, has only of late been fully defined, and obtained that notice which its importance deserves. On this account, and from the difficulty of its detection and frequent occurrence in medico-legal cases, it will be necessary for me to make a few remarks. In doing this, I cannot do better than give a short abstract of what Dr Prichard has said upon the subject.

Moral insanity has been recognised by Pinel, Esquirol, Georget, Marc, and other distinguished writers. It consists of a morbid derangement of the feelings, affections, and active powers, without the intellectual faculties being impaired or disordered. Many individuals who are affected with this form of insanity live at large, without any restraint. They are at first considered to be singular, wayward, and of eccentric character. Upon closer inquiry, remarkable circumstances in their manners and conduct will be discovered, which more than justify doubts of their insanity. In many instances the individual has suffered from fever, insanity, or other disease of the brain, at some previous period. His temper and dispositions seem much altered, so that he is like a different person. Peculiarities increase ; and extravagant inclinations, dictated solely by

caprice and passion, are indulged in, to the discomposure and annoyance of their friends. At length a complete perversion of the affections, and dislike or even enmity shewn to their dearest friends, excites alarm and creates solicitude. But the individual so affected, when conversed with, seems quite correct intellectually, gives pertinent answers to questions, and shews no particular mental illusion. Some cases of this form of insanity consist only in eccentricity of habits and character, a morose disposition, a wayward temper, sullenness, and abstraction from other men.

CASE 224.—The case of the only son of an indulgent mother is given as an example of this form of insanity by Pinel. He was brought up to the gratification of every caprice and passion which a violent temper could augment. Ample supplies of money removed any obstacle to extravagant indulgence ; so that any instance of opposition roused him to acts of violence and fury. He wished to reign by force, and disputed, quarrelled, and fought with every adversary. If a dog, horse, or other animal offended him, he instantly put it to death. When unmoved by passion, he possessed a perfectly sound judgment. When of age, he succeeded to an extensive domain, for the management of which he proved himself quite competent, and was even distinguished for acts of beneficence and compassion. But injuries, law-suits, and damages continued to be the consequences of his quarrelsome disposition ; and at last this terminated in his throwing a woman, who had given him offensive language, into a well. For this he was prosecuted ; but from the evidence of his furious conduct, he was condemned to perpetual confinement in the Bicêtre.*

In some individuals affected with this form of insanity, without any illusion, or the faculty of reason being impaired, a constant feeling of gloom and sadness clouds all the prospects of life, even in the midst of every comfort and source of happiness. They feel distress at their not being able to fulfil the active duties of life, and frequently they feel a horror of being

* *Traité sur l'Aliénation Mentale*, Paris, 1809.

driven to commit suicide or some other great crime, which makes them feel distrustful of themselves.

In some, the state of gloom and depression gives way to an opposite state of preternatural excitement, accompanied with active, boisterous, and extravagant conduct. In other cases, religion gives rise in the mind either to an extravagantly happy or desponding mood.

“Not unfrequently persons affected with this form of disease become drunkards; they have an uncontrollable desire for intoxicating liquors, and a debauch is followed by a period of raving madness, during which it becomes absolutely necessary to keep them in confinement.”

It is of importance particularly to observe, that the eminent authorities already referred to on this subject, have declared their conviction, from extensive observation and experience, of the reality and existence of this distinct form of insanity without intellectual error or delusion. “There are instances of insanity,” says Dr Prichard, “in which the whole disease, or at least the whole of its manifestations, has consisted in a liability to violent fits of anger breaking out without cause, and leading to the danger or actual commission of serious injury to surrounding persons,” such as “continually indulging enmity and plotting mischief, even to murder against some unfortunate victim of his malice.” This happens without any intellectual hallucination, and merely from intense malevolence, without provocation, either real or alleged.

A propensity to theft has also frequently been found in cases of moral insanity.

I shall conclude this brief account of what has been denominated *moral insanity*, by remarking, that individuals so affected have felt a sudden impulse arise within them to commit some atrocious act, though they appeared to be in full possession of their intellectual powers. This involuntary impulse has been with distress and dread communicated to physicians and others, beseeching them to adopt precautions for their safety. In other cases, crimes have been committed without any fixed object or motive, and punishment inflicted on the unfortunate maniac.

These remarks I have had occasion to see fully confirmed in actual cases, both of criminals and others, which came under my observation ; and, as will afterwards appear, this form of insanity is not only deserving of the greatest attention, but its development is likely to cause a great change in the view which the law has hitherto taken of cases of insanity, when pleaded in exculpation of crimes.

SECTION III.

On the Responsibility of persons affected with Insanity as moral agents.

As the indications of insanity may be partial or complete, in various degrees of intensity, and in assuming different modifications, it has often been an important question among the highest legal authorities,—what degree of insanity absolves the individual from responsibility for his actions ?

It has been the generally adopted opinion, that total derangement, causing absolute alienation of mind,* can alone relieve a criminal from the pains of law. If it be only partial, “it cannot,” said M. Peyronnet, “serve for an admissible excuse.” This opinion, the labours of the German and French physicians have done much to controvert, and to exhibit the falsity of its position. They have shewn it to be founded on a very limited and contracted, as well as incorrect, knowledge of the nature of the malady of which the monomania is only an indication or symptom, which has supervened, in its progress, upon moral insanity.† For, as has been observed, “such persons, though they reason correctly on a variety of subjects remote from the particular one on which this illusion turns, are yet more fully deranged than they appear to be, and are ever liable to display perversities both in feeling and action.” (p. 376.)

It now, therefore, appears to be clearly established, that, with a very few rare exceptions, partial insanity and monomania are preceded and accompanied with more general derangement

* M. de Peyronnet, Lord Hale, Lord Mansfield (Alison), Baron Hume, Sir John Nicholl, Blackstone.

† See numerous cases illustrating this in Treatise of Dr Prichard.

of the mind than one point, or moral insanity ; and hence, that punishment should be attached with extreme caution, to individuals in whom any insane illusion has been proved.

In cases of monomania, the particular subject of hallucination is often with difficulty detected ; but it is of importance to ascertain the paramount idea, and whether it occasions more or less derangement of the intellectual faculties, or only prevents the proper exercise of the judgment upon other objects. Such general derangement will usually be found. When the prevailing error carries along with it complete incoherence of ideas, the case approaches to imbecility.

Another prevailing opinion seems to have been erroneously entertained by medical and legal writers in this country, namely, that “ illusion and hallucination constitute an essential character of insanity.” The existence of these would, therefore, be necessary to establish a plea of insanity. Where such delusions exist, the case would not be attended with much difficulty. But there are other cases of purely moral insanity where these are wanting, and in which the greatest difficulty occurs. And as these cases have not hitherto been recognised in the administration of justice in this country, to them I am anxious to direct the more special attention of the profession. For, when it is borne in mind and made fully known to judges and juries that, in moral insanity and monomania, there is generally a morbid derangement of the whole mind, occasioning a perversion of the whole conduct and moral character of the individual, the cases of punishment in criminals who have shewn symptoms of mental disease, will probably be reduced to a very small proportion.

SECTION IV.

Of Homicidal Insanity.

A peculiar disposition or propensity, in some cases both of moral and intellectual insanity, to destroy life, and hence called *Homicidal Insanity*, has attracted much attention of late years, and been amply confirmed by observation.

Examples of homicidal mania under the influence of illusion or disordered intellect are familiar to all. But there are also now recorded many remarkable cases, in which murder was committed solely under the impulse to commit this destructive act, without any malicious feeling. The murderer, in this case, is driven by an irresistible impulse, without reason, motive, interest, malice, or disorder of the intellect, to commit this atrocious act, so repugnant to the laws of nature and the feelings of humanity. This homicidal mania has been fully recognised by M. Esquirol, Georget, Marc, Michu, and others. It is so highly interesting in a medico-legal point of view, that I shall give an outline of a few of the cases related by these authors.

CASE 225.—The case of a young lady is given by M. Marc, whom he examined in one of the asylums. She experienced a violent inclination to commit suicide, for which she could not assign any reason or motive. She was rational on every other subject; and when she felt this propensity approach, she solicited restraint, and desired to be carefully watched till the paroxysms left her, which generally lasted for several days.

CASE 226.—A maid-servant, about 28 years of age, at the periods of her catamenia, experienced an excitement which did not affect her judgment, but rendered her extremely dangerous, since, without provocation, she menaced every person with a knife; and one day, having realised her menaces, she was sent to a lunatic hospital.

CASE 227.—A distinguished chemist and poet committed himself to a lunatic asylum. He felt tormented by a desire for killing, and implored Divine deliverance to keep him from such an atrocious propensity. When he felt likely to yield to his inclination, he requested his hands to be tied. He afterwards endeavoured to commit homicide on one of his own friends, and died in a violent fit of maniacal fury.

Several similar instances are recorded, of persons having a strong desire to kill their own children, though quite sensible of the greatness of the crime, and shewing no other symptom of insanity.

CASE 228.—Antoine Leger, an old soldier, was tried at Versailles in 1824. In his youth he had been gloomy and stern, loved solitude, and shunned society. In 1823, he fled from his home, concealed himself in a forest, where he lived for weeks eating wild fruits. He one day killed a rabbit, and devoured it raw. A desire seized him to eat human flesh, and drink human blood. “Seeing one day a little girl near the margin of the wood, he seized her, murdered her, sucked her blood, and afterwards buried her body. Three days afterwards he was apprehended; at first he denied the charge, and invented absurd stories, but at length, being confronted with the body and interrogated, he avowed the fact.” He afterwards narrated its details with calmness. He was condemned and executed.

CASE 229.—“Louis Lecouffe was epileptic from infancy, had been often deranged, seen visions, and been accounted by all who knew him to be deranged and idiotic. At the instigation of his mother, he was induced to rob and murder a woman against whom he entertained no malicious feelings. He was executed. This was a case not strictly of moral insanity, but of imbecility, which rendered him a victim to the evil influence of others.”

CASE 230.—“L. A. Papavoine, was a solitary morose wretch, who was considered by all who knew him to be half crazy and melancholic. Wandering in the wood of Vincennes, he saw a lady walking with two children. He went to a village and bought a knife; returning quickly, he accosted the lady with pale looks and agitation, and stooping suddenly, stabbed one of the children; while the affrighted mother attempted to remove it, he killed the other.” The assassin fled, but was overtaken and brought to trial, and executed. He had obviously no motive for the atrocious deed, except a spontaneous impulse, to which he ascribed it. The physicians felt perplexed, but thought insanity probable. But there having been a doubt upon this question, the prisoner should have been acquitted.

“It must be allowed,” says Dr Prichard, “that instances may and do occur in which the discrimination would be difficult, between manifestations of insanity and acts of a criminal nature, and that this difficulty would be increased by the ad-

mission of a form of insanity free from hallucination or illusion." The following remarks, taken chiefly from M. Esquirol's essay on this subject, may tend in some instances to lessen the ambiguity.

1. " Acts of homicide perpetrated or attempted by insane persons, have generally been preceded by other striking peculiarities of action, noted in the conduct of the same individuals; often by a total change of character."

2. " The same individuals have been discovered in many instances to have attempted suicide, to have expressed a wish for death; sometimes they have begged to be executed as criminals."

3. " These acts are without motive, they are in opposition to the known influences of all human motives. A man murders his wife and children, known to have been tenderly attached to them; a mother destroys her infant."

4. " The subsequent conduct of the unfortunate individual is generally characteristic of his state. He seeks no escape or flight; delivers himself up to justice, acknowledges the crime laid to his charge, describes the state of mind which led to its perpetration; or he remains stupified and overcome by a horrible consciousness of having been the agent of an atrocious deed."

5. " The murderer has generally accomplices in vice and crime; there are assignable inducements which led to its commission, motives of self-interest, of revenge, displaying wickedness premeditated. In some instances the acts of the madman are premeditated, but his premeditation is peculiar and characteristic." There is also a presumption of insanity where the individual has either been previously insane, or affected with epilepsy.*

SECTION V.

Cases in which the Plea of Insanity was urged for the Prisoner.

CASE 231.—George Waters, a ship-carpenter, about 30 years of age, who lived in Leith, was tried at Edinburgh, November

* Prichard on Insanity. Lond. 1835.

1831, for the murder of his son, a boy seven years of age, by means of a common table-fork. (See Case No. 84.)

For some time before the murder, Waters had become unsteady at his work, and had acquired habits of dissipation, which proved equally injurious to himself and his family. In consequence of his frequent state of intoxication, and his outrageous conduct on such occasions, he was often excluded from his own house by his wife, who apprehended danger to herself or her children.

His conduct had several times given distinct proofs of mental derangement for short periods. In one of these he was taken to the Police Office in Leith, where he seemed to those who saw him to be labouring under *delirium tremens*.

On the night previous to the murder, Waters had been much intoxicated, and was refused admission into his house. In the morning he returned and was admitted; he got some food from his wife, and then went out and got some whisky.

About half-past 12 o'clock on the day of the murder, Waters induced his son to accompany him to Edinburgh to visit his aunt, who lived there.

The father, leading his son by the hand, now proceeded towards Edinburgh by the Bonnington Road, and was observed to take an old rusty fork from the boy and put it into his pocket. He proceeded towards Stockbridge, but before arriving there, he departed from the road, and crossed the Water of Leith to the field, where he murdered the boy in a ditch, by stabbing him to the heart with the fork.

Waters was seen by several persons, both immediately before and after the murder, all of whom, as well as those who saw him on the evening of the same day, thought him to be in a state of derangement, from his wild frantic appearance, his incoherent talk, and insane gesticulation. After he committed the murder he was seen hovering about the place where the body lay. Two persons, who afterwards found the body of the boy, observed him alternately look into the ditch where it was lying, move his body backwards and forwards, and place his hands across his breast; from which they concluded that he was "a poor man in a state of derangement."

In the afternoon and evening of the same day, he was seen at Craigleith and Cramond speaking and acting in an incoherent manner. In particular, he brandished the fork in his hand, took off part of his clothes on the high road, trampled upon them, and said he was an honour to his country, being Sir William Wallace, and waited there for his title, which was to come from Heaven.

Early next morning he was found in a stair at Stockbridge, speaking incoherently, and so loud that he alarmed the inhabitants. Some of these persons had heard of the murder of the boy, and the description of Waters, which this person in the stair seemed to answer. They accordingly accused him of the deed, which he at once acknowledged, and said that he was the unfortunate man who did it. At the Police Office, to which he was taken, he narrated in a circumstantial manner how the murder had been committed.

In the forenoon of the same day on which he was taken to the Police Office, being the day after the murder, he was visited by Dr Spens and myself. He had then become more composed ; and, in conversation with him, he spoke with great regret of the death of his son, and said he could not conceive how he could have been guilty of such a crime. He seemed to be a man rather of weak intellect, but shewed no indication of insanity, or of any mental hallucination.

By the evidence adduced in Court, the death of this boy, David Waters, by the hand of his father, was clearly established. The exculpatory plea of insanity at the time of the murder, was also considered by the Court and Jury to have been sufficiently proved. He was accordingly acquitted from the charge of murder, and ordered to be confined for life.

By the testimony of the witnesses then brought forward, Waters had been a man of peculiar and weak mind. He had suffered several domestic calamities ; and had been at times in a state of mental derangement. All those who had seen him on the morning of the murder, said that he had a fierce and excited look ; his conduct, both immediately before and after the murder, was that of an insane person, and in this light had attracted the particular attention of the persons who saw him.

In the slaughter of his own unoffending son, to whom he was much attached, without either object or motive, we have a presumptive proof of insanity. His conduct, too, on the evening of the same, and morning of the following day, affords strong concurring evidence of mental derangement. His conduct at Craigleith, at Cramond, and at Stockbridge, and his confession of the deed, are all very conclusive of this. This sort of confession has generally been made by individuals who have committed homicide from insanity. In short, it is so universal in such cases, that some very distinguished medical jurists* consider this confession alone to be a sufficient test of insanity.

In many cases we have also negative evidence of this state of mind, from the absence of motive and premeditation of design; as well as from the perpetration of the crime having been upon one towards whom the assassin had not, and from natural ties could not, be conceived to have formed so great a malice, if he had been of sound mind. No doubt, therefore, could be entertained in the case of Waters of his having been in a state of mental derangement at the time when he deprived his son of life.

George Waters, it is true, was proved to have been previously a man of weak intellect. Yet his capacity was sufficient to have enabled him to work like other men at the trade of a carpenter, by which he was able to earn a livelihood for himself and his family. But he became unsteady at his employment, irregular in his habits, and addicted to the immoderate use of ardent spirits. The insanity was greatly the cause of this unsettled state, and perhaps had been excited by the drinking, but afterwards both aggravated each other.

Besides the use of spirits being in many cases an exciting cause of insanity, drunkenness sometimes forms a part of this insanity, and it is no uncommon thing for some unfortunate individuals to continue in a state of delirium for a day or two after a fit of intoxication. Of this I have seen several instances.

I saw Waters in the jail five years after, and he continued of perfectly sound mind.

* Foderé. See Cases by Baron Hume and others.

CASE 232.—Robert Stirrat, about 25 years of age, was tried at Glasgow on the 28th December 1831, for the murder and robbery of his aunt Mrs M'Gibbon, in October preceding.

Stirrat had always experienced the greatest kindness from his aunt, by whom he had been brought up from his boyhood, and with whom he had continued to live. Both Mrs M'Gibbon and his other relatives always considered him to be a person of weak mind. Yet she employed him as her agent in a coal trade which she carried on. Other persons also considered him so unfit for transacting business, that they declared they only paid him money because they were desired to do so by his aunt, with whom they had dealings. But though of weak mind, he had acquired considerable proficiency in the ordinary branches of education and religious knowledge.

About the month of August, being about two months before Mrs M'Gibbon's death, Stirrat had become very dissolute in his conduct, and absconded from her house with some of her money. On the 30th September he returned, and was kindly received by her ; but on the evening of the 2d of October (the second day after his return), when Mrs M'Gibbon was lying asleep on a sofa, he deprived her of life, by repeated blows on the head with an axe. He then robbed her repositories of a set of silver tea-plate, and other valuable articles, which he disposed of to the keeper of a public-house, who had been once a jeweller, and who immediately melted them to prevent recognition.

Eight of the witnesses called for the prosecution deponed, that they had known Stirrat for some time, and had observed his conduct on different occasions, having either conversed or transacted business with him. They all considered him to be a person of weak intellect. Some of these, who were medical men, had considered him at times to have been deranged, when they had been called to see him ; but they did not say whether or not it had been caused by intoxication. Others said, they had seen him on different occasions, to have been very easily roused into sudden bursts of furious passion. He had then a brother confined in the lunatic asylum.

When examined before a magistrate, Stirrat confessed the murder, and gave a circumstantial account of it. A letter also confessing it, and shewing distinct aberration of mind, was found in his pocket addressed to his father.

While Stirrat was confined in jail before his trial, he was visited from twenty to thirty times by Dr Corkindale of Glasgow, who was at the utmost pains to try, in every possible way, whether or not insanity could be discovered in his case. But the result of his examinations was, that Stirrat shewed no incoherence, hallucination, or illusion upon any subject. Dr Corkindale, however, considered him to be a person of weak intellect, and of slender, though not unsound, judgment. A few days before his trial, I visited him along with Dr Corkindale, and formed precisely the same opinion of him.

The only medical witness upon his trial, who considered him to have been in a state of mental derangement, when he committed the crime, was Dr Balmanno, who admitted that he judged not from any direct evidence of this, but drew it as an inference from the nature of the act itself, which he thought could only have been that of a lunatic. But certainly the cool deliberate murder, the robbery, and disposal of the stolen property, could scarcely have been effected by a madman. Mrs M'Gibbon having been asleep, Stirrat committed the murder without any provocation to excite violent passion, and there was an artful selection of the valuable articles, as well as of the very suspicious character to whom he disposed of them, and the reason he gave for having had the articles in his possession,* altogether very unlike the conduct of a lunatic. Surely in all such cases some further proof of insanity than the nature of the deed itself ought to be required. This was so far unlike the deed of a really insane person, that here there was an obvious motive, whereas in murders committed by lunatics, there is generally none apparent.

Was insanity proved at the time when the murder was committed in this case? Of illusion or hallucination there was certainly no evidence. But from his imbecility, unsettled habits, and

* That his aunt's affairs had gone wrong, and that he had taken these as his share of her property.

liability to sudden furious passion, we may conceive him to have been affected only with *moral insanity*; and, as part of this, a furtive propensity, stronger than his intellectual powers were capable of overcoming. On the other hand, judging from the situation of Mrs M'Gibbon,—Stirrat's conduct at the time,—his manner of accomplishing the murder, and the motive of robbery which he had in view, it could neither be considered as a deed prompted by sudden violent passion, nor the delusions of insanity. Neither were the contrivance and execution of the transactions indicative of imbecility of mind. On the contrary, they displayed considerable inventive and reasoning powers. And it may justly be doubted, whether an *imbecile* could summon nerve and firmness enough, to have carried through such a train of atrocities.

At some previous period, Stirrat had been seen in a state bordering upon insanity. But neither immediately before nor after the murder did his conduct or manner give any proofs of insanity to those who saw him, or betray any thing different from his usual state of mind and behaviour. And there is reason to conclude, as in the case of Waters, that the derangement of mind, which had appeared on some occasions previously, had been produced by the excessive use of spirits. When he returned to his aunt's house, it seems highly probable that it was expressly for the purpose of plunder, to enable him to proceed in the career of dissipation upon which he had entered. How far he had been prompted to do so by the person who received the stolen articles from him, and with whom he seemed to have been too intimate, does not appear. But the murder may have been committed, from what he considered a favourable opportunity for doing so presenting itself, in order more easily to accomplish and conceal the robbery. According to Marc, the motive of personal interest shews strongly *the moral cause* of the crime of murder in such doubtful cases.

It must be admitted, however, that his confession of the murder before a magistrate after he was apprehended, if not counselled to do so by his legal adviser, in order to support the plea of insanity, afforded one very strong proof of insanity. But in Glasgow, I am informed, prisoners are generally attended on

their examinations before magistrates by a legal adviser; so that this confession may not have been entirely from his own free will. In confirmation of this, I may state that he always appeared much displeased when the plea of insanity was spoken of to him before his trial.

Stirrat was condemned upon the verdict of a majority of the jury, who considered the murder and robbery, but not the insanity, proved. Upon a strong representation for royal mercy, however, he was reprieved during his Majesty's pleasure. He did not afterwards exhibit any signs of insanity, and was transported.

CASE 233.—John Howison, about 45 years of age, a sturdy beggar, but formerly a hawker of small wares, was tried at Edinburgh, 31st December 1831, for the murder of Widow Geddes, near Cramond, on the second day of same month. (See case, No. 210.)

Howison, who had a very peculiar and forbidding appearance, was seen going about the hamlet, where this unfortunate old woman lived, about eleven o'clock on the forenoon of the day on which she was murdered. From several persons who saw him he received charity.

That Howison was the person who perpetrated the murder was clearly established; and, when he left the cottage where it was committed, he was seen to come out, close the door behind him, and look eastward along the line of cottages, (by which was the only exit to the road,) in order to see if any one observed him. He then ran down a bank (where there was no path) to the high road, in place of returning eastward by the cottages, and continued to run to the westward along the high road as fast as he could.

He was apprehended next day at Corstorphine, a village between two and three miles to the south from Cramond. When taken, he denied all knowledge of the murder, and said he had come from Glasgow. To other persons who saw him on the same day and accused him of the murder, he replied, that nobody saw him do it, and they must prove it.

When Howison was brought into Edinburgh he was visited by Dr Spens, who also saw him several times before his trial,

and had conversations with him of considerable length. In all these interviews with him, Dr Spens could discover no indication of insanity, no hallucination, nor disorder of intellect. I visited him twice, and formed a similar opinion of him; but I considered him a man of low or weak intellect, and to be possessed of a great degree of cunning. When I saw him he denied all knowledge of the murder, which circumstance I conceived at the time to be a strong proof of sanity, and of his knowledge of the heinous nature of this crime in particular, if he really was the person who had perpetrated it. He afterwards underwent several judicial examinations before the Sheriff-substitute and Procurator-fiscal, who stated, that his conduct when before them was composed and perfectly rational.

Dr Alison, Dr Mackintosh, and Dr Scott, as well as Dr Spens and I, heard the evidence at the trial, so far as regarded the conduct of Howison both before and after the murder, as also regarding his state of mind for some time previously.

A woman from the Canongate, with whom Howison had lodged, had known him for a considerable length of time, for he had lodged with her six years previously. He then left her to go to England, where he had remained till within the last two months; and on his return to Edinburgh he was so much changed in his appearance and in his circumstances, that she did not at first know him. He had formerly been a hawker of small wares, was clean in his person, and like other people; now he was a beggar, dirty in his appearance, and peculiar in his mind. He said he had a fever in England, of which no correct account could be obtained. She detailed several peculiarities which she had observed in Howison while her lodger. The chief of these were a voracious appetite,—a practice of pricking his arms with pins or needles, to get blood from them, which he thought did good to a painful affection of his head,—he sprinkled salt on his bed to keep away “fleas,”—and when he carried salt about his person and upon his head, which he said was to “keep away the *witches*,” it is probable he had a similar object in view, which he did not choose to avow; for he seems to have had faith in the power of salt to destroy vermin, but was never known to have given any other indication of be-

lief in witches. Every one who had known him said that he conversed rationally, and they were convinced he knew perfectly what was right or wrong ; and that they could not have believed he would have been guilty of such a crime. He was always honest in his dealings, and provided for himself.

He had at times been seen engaged in performing some of the devotional ceremonies of the Roman Catholic religion ; and for some time before his imprisonment, he had attended regularly at the Quaker Meeting-House, where he was considered deranged in his mind from his peculiar manner and behaviour. From all I heard of these, I conceived that his conduct exhibited indications of insanity.

Neither Dr Spens nor I had, in our interviews with him, observed any proofs of insanity ; and no part of his conduct immediately before or after the murder, afforded any evidence either of alienation of mind, illusion, or hallucination. But judging from his previous history, along with this unpremeditated murder, committed without motive, object, or reason, except a momentary fit of malice and furious passion, we agreed with Drs Mackintosh, Scott, and Alison, in conceiving that, although his conduct shewed no insanity at the time of the murder or afterwards, he had shewn signs of it previously ; and it was therefore probable, he might have laboured under some hallucination or mental delusion when he committed the deed. These gentlemen, however, went farther, and gave it as their opinion that he was in a state of insanity when he committed the murder.

From all these circumstances, was there sufficient evidence of the insanity of Howison, or such a degree of it as should exempt him from the penal consequences of his crime ? Insanity was not shewn to have existed, by any part of his conduct either before or after the fatal deed. He had spoken rationally to persons who saw him immediately before the murder, and his conduct after it shewed the greatest circumspection and prudence, as well as considerable judgment in adopting every precaution to conceal it. When to this is added, that he had never previously been in a decided state of insanity, such as either to have rendered him a dangerous person, or to have

warranted his confinement—his perfectly composed and rational conduct at his examination before the Sheriff—his denying all knowledge of the crime—and his never having shewn any proofs of mental derangement to those medical gentlemen and others who saw him and conversed with him, surely some stronger proof of insanity was required to establish this plea. For, if the plea of insanity were to be founded on such grounds as that of previous slight symptoms of it, the crime committed becomes the only proof of insanity at the time. But other evidence of insanity besides the act itself is required by law for its establishment ; for the distinction between such a sudden and transitory fit of insanity, existing only during the execution of the deed, and a fit of furious ungovernable passion, could not be made, unless the individual had been so affected at a previous period, or was subject to one or other of these states. Accordingly, it was the unanimous opinion of the judges and jury, that Howison's insanity at the time of the murder was not established ; so he was condemned and executed. Yet, I must admit, it may be said that, being affected with moral insanity, his previous history only shewed that he was not affected with intellectual insanity. But for such a case as this, the law of the country has not yet made any provision.

CASE 234.—John Stewart was tried at Perth, April 1833, for the murder of his wife ; and the exculpatory plea of insanity was urged in his behalf.

It appeared from the evidence adduced at the trial, that Stewart had been for many years under-gardener and forester at Blair, near Dunkeld. He had a wife and family, with whom he had always lived happily. For a long time he had been subject to low spirits, on which occasions he was sullen,—he was over anxious about his work, and fancied every thing was going wrong,—he refused to go to church or read his Bible as usual. About sixteen years previously, he went out in one of these fits in the morning, but did not return, and search being made, he was found with his throat cut, having attempted suicide. This was confirmed by Dr Minto and another respectable surgeon who had attended him. The former of these considered him in such a state of derangement, that he had to put a

strait waistcoat upon him every night for two weeks. On several other occasions, he had wandered out and shewn distinct symptoms of incoherence. Two witnesses proved his having been subject in his youth to epileptic fits. Though kind to his family, other persons felt afraid of him.

About eight days before the murder, Stewart had again become depressed in his mind, and had a gloomy view of every thing. On the morning when it happened, his two daughters went to a water at some distance to wash clothes. When they returned, he spoke to them in an angry tone, took a knife out of his pocket, and said he "had killed their mother, and that he would kill them too." One of them felt afraid, and upon running into the house, saw her mother lying on the floor dead, and an axe beside her. She then gave the alarm to her brother and neighbours. The father looked much agitated and excited, "like a person disturbed in his mind."

On the other hand, fifteen of the witnesses examined for the Crown at the trial, four of whom were medical men, had known Stewart for periods varying from a few months to sixteen years, all of these considered him of sound mind, not having ever seen any thing to the contrary.

The evidence of the medical men called by the public prosecutor, was very strongly given in favour of the perfect sanity of Stewart. Dr Malcom, physician to the Perth Lunatic Asylum, saw the prisoner several times after the murder, and upon this he stated that he considered these opportunities sufficient to enable him to form an opinion as to Stewart's mind. He was of opinion that the prisoner was perfectly sane; and he "does not think an insane person could conceal insanity in conversation altogether." "Knows nothing of the previous history of the prisoner."

The other three medical men had known Stewart for many years. Two of them had attended him professionally for complaints unconnected with the state of his mind, and on no occasion did they ever see any thing in his conduct to make them doubt his perfect sanity. One of these, however, after hearing the exculpatory evidence in support of the plea of insanity, changed his opinion, and said he thought from the evidence,

that Stewart had been in "a state of melancholia occasionally, and insanity frequently."

The jury, after due deliberation, found, by a majority of one, that Stewart was guilty of the murder, and the plea of insanity not proved. But upon a representation of his case being made to the Crown, the Royal clemency was extended to him by a commutation of his sentence to that of confinement for life.

Few persons, I conceive, can read the details of this case without being convinced that Stewart was subject to *insanity*. Yet it cannot be surprising that the jury should have given such a verdict on the case, from the strong evidence of his *sanity* which was laid before them, and the state of the law, which requires absolute alienation of reason in order to absolve from punishment. The evidence of his sanity can only be accounted for by supposing that, though insane, his intellectual faculties were not much affected, so that he could converse correctly.

But this evidence of Stewart's sanity only amounted to these witnesses stating, that they had not observed in him any insane illusions or hallucinations. But is this sufficient evidence that a person *is not insane*? Strange to say, Dr Malcom, physician to a large lunatic asylum, confirmed, so far as his testimony went, the now exploded and long antiquated opinion, that it was sufficient. It has been already shewn, however, that an individual may be insane, and yet converse rationally,—that he may talk incoherently only on one subject, which he may carefully conceal,—and that insanity may go off so as to cause lucid intervals. Yet Dr Malcom declared, that the few interviews he had with Stewart, were sufficient to enable him to form an opinion of his state of mind, even without knowing any thing of his previous history.

Medical men do very well to give an opinion on a case, so far as they personally observed, like any other ordinary witness, speaking to facts. But when asked professionally, in a general way, their opinion as to the sanity or insanity of the individual, this is not to be formed on their own observation alone, but on a consideration of the evidence as to the previous his-

tory of the person viewed along with it. Indeed, this being the chief evidence, no medical man should ever give an opinion upon a case, without first hearing the exculpatory witnesses examined. If he does so, he will venture an opinion upon a partial statement, probably to his own discredit, but generally to the disadvantage of the pannel.

CASE 235.—John Barclay was tried at Glasgow, 23d April 1833, for the murder and robbery of S. Neilson at Cambusnethan.

On the 4th February 1833, Barclay had been placed at the bar of the High Court of Justiciary at Edinburgh, charged with the above crimes. But from his vacant and imbecile appearance, the Court had doubts as to his being a fit subject for trial. After examining several witnesses as to this, the Court remitted to Drs Spens, Alison, M'Intosh, and Hunter, along with Dr Sanders, “to visit and converse with the pannel, and to take all such measures as to them may appear necessary,” with the view of ascertaining and of giving evidence in Court as to whether “the pannel be in such a state of mind as to be a fit subject for trial.”

On the 25th February 1833, the trial was resumed, and the above medical gentlemen were examined in Court, as to the state of Barclay's mind.

All of them had conversed repeatedly with Barclay, and they considered him of very weak or defective mind, not insane. Drs Spens, M'Intosh, and Hunter, particularly alluded to his telling a long and consistent story regarding the murder, to free himself from the charge. This story was uniformly the same, and so plausible, that they were of opinion, if it proved to be a fabrication of his own, they would not consider his mind so defective as to render him an unfit subject for trial. Drs Alison and Sanders considered him so defective in intellect, that they did not consider him a fit person for trial.

The Solicitor-General maintained, that if the pannel had deceived the medical gentlemen by the story he told as to the murder of Neilson—if capable of having laid a plan for the accomplishment of the crime charged, and of inventing such a

story in his defence as that in his declaration before the Sheriff of Lanarkshire, he was quite a fit subject for being put on trial before a jury. This was the only way in which he, as public prosecutor, could have an opportunity of proving these things, and it would be far more satisfactory to the public than any other course.

The judgment of the court was given on the 11th March 1833. The Lord Justice-Clerk stated, that it being the duty of the court to ascertain that the individual to be tried was of sound mind and fit for trial, they had adduced evidence on this point. That evidence had been contradictory. But, as the evidence had not convinced the court that Barclay was unfit for trial, and because the opinions of several of the medical gentlemen turned on the story he told being a fabrication or not, the Judges were unanimously of opinion, that the Solicitor-General should be allowed to proceed in the case as he thought proper.

Accordingly, on the 23d of April 1833, Barclay was tried at Glasgow. He was a big, stout looking man, about twenty-five years of age; but had a small head, and had a vacant, silly, and unmeaning look; it was evident there was a great want of intelligence in his appearance. Those persons who had long known him declared him to be of weak, though not unsound, intellect; that he was commonly called "daft Jock" by the children. That though a weaver, he was unsteady, was unable to work much, and was in poverty. The minister of the parish had known him long, and considered him quite imbecile, and not fit to be considered a responsible person.

Neilson, whom he murdered that he might rob him, had been always very kind and attentive to Barclay, and encouraged him to go about his house. He had been there on the night before. In the morning he knocked out Neilson's brains, and stole his watch and three pounds in money. He then left the house and locked the door outside. He afterwards denied all knowledge of the murder. But it was distinctly proved against him; and that the story he told was altogether a fabrication, as he afterwards acknowledged, and to save his life.

Dr Balmanno of Glasgow had often visited Barclay, and con-

sidered his powers of moral perception and discrimination to be very weak, and that he had a great tendency to deceit.

Dr Corkindale of Glasgow had seen Barclay very frequently. His opinion was that he possessed great knowledge of right and wrong. He had a deficient, not a diseased mind. His memory being retentive, he could repeat, and shew he understood, considerable portions of the Bible.

The jury, after due deliberation, returned a verdict finding Barclay guilty of the murder, but recommending him to mercy on account of weakness of intellect.

Barclay had sentence of death pronounced upon him, and was afterwards executed.

In this case there was no evidence of morbid illusion or aberration of mind. In short, the evidence was entirely of imbecility or idiocy, not of insanity. And it appears that though this was established to have existed to a considerable extent, it did not amount to that degree which the law requires to absolve from punishment for so great a crime. I had an opportunity both of conversing with Barclay and of hearing the medical evidence given upon the case in Edinburgh, and concurred very much in the opinions there given.

SECTION VI.

Concluding Remarks on the Exculpatory Pleas of Insanity and Idiocy.

In all the cases where the plea of insanity is brought forward in exculpation of crime, if there is not evidence of decided insanity, there is at least some peculiarity in the mental constitution of the individual for whom this plea is urged,—some state of mind, rendering him unlike the generality of other men, upon which the plea is founded. The most common of these states of mind are, *1st*, Different degrees of idiocy, imbecility, or weakness of intellect; *2d*, Sullenness and irritability of temper, or liability to sudden violent bursts of passion; *3d*, Weakened intellect and derangement of the faculties, from previous injury of the head or affection of the brain, such as by fever

or stroke of the sun, by which the moral and intellectual faculties have been more or less disordered; *4th*, Eccentricities of conduct, or moral insanity without the intellect being deranged; *5th*, Fits of derangement by the excessive use of spirits; *6th*, Natural predisposition to insanity, and some previous symptoms of it.

These may be of different degrees in different individuals,—they may vary at different times in the same individual,—and they may be variously modified, without reason and intellect being either wanting or very defective,—or they may approach to idiocy and intellectual as well as moral insanity. Hence the difficulty with which this subject is beset.

In order that insanity can, according to law, constitute a valid plea of exculpation or exemption from the penal consequences of a crime, it requires to be completely and absolutely proved on the part of the prisoner. The aberration of mind must have been absolute in degree, and so complete at the time of the deed, as to have deprived the individual of a knowledge of right and wrong,—of knowing friend from foe. The law makes no allowance for a weak and crazy intellect, for the eccentricities and disordered propensities constituting moral insanity, or for the madness of voluntary intoxication. Neither does it make any allowance for the person having been subject to occasional fits of insanity, unless there is evidence of it at the time when the crime was committed. Upon these principles alone has this plea been sustained.*

In considering medico-legal cases involving the question of insanity, it is necessary for the medical jurist to pay particular attention to the previous history and conduct of the individual supposed to be insane; but more especially to his conduct and manner immediately before, at the moment of, and immediately after, the commission of the crime, in order to ascertain whether or not any symptoms of insanity then existed. Though no illusion or symptom of insanity can be discovered at interviews with the pannel, it cannot be said that he is sane. Hence conversations of medical men with the individual are not, in all cases, of importance. But such interviews should, nevertheless,

* Hume on Crimes. See above, p. 316.

take place. For in some cases madness is at once obvious; in others, the interview may tend to confirm an opinion as to the general character of the individual, either for weakness or peculiarity of mind.

Such interviews, however, should be very cautiously used as affording proof of *soundness* of mind. For the insanity, though complete at the time of the crime, may have gone off, as in the cases of Sir A. Kinloch, tried in 1795, and Campbell, tried at Glasgow 1826, or Waters 1831; it may be successfully concealed by the individual, or the subject of his madness may not have been touched upon during the conversations with him, or the disorder may affect the moral powers without affecting the intellectual faculties. Cases of this kind have occurred as already detailed. An individual may likewise shew a perfect knowledge of right and wrong, as upon the subject of murder, and may nevertheless be completely blinded as to the crime committed by his own individual act, either from moral insanity or from a morbid hallucination relative to the particular case. Hence judges should keep in view, that, although medical men and others discovered no indications of insanity after several conversations with the person, nevertheless he may have been, and still may be, insane.

In many doubtful cases, therefore, a medical witness cannot answer decidedly from his own experience, if asked, whether or not the individual is insane. He can only, like any other witness, speak to what he has himself seen, as facts concerning the individual, which may not have afforded to him any evidence of insanity. But if asked to give an opinion upon the case generally, he can say, upon the evidence of credible witnesses, as to the conduct of the individual, and from his knowledge and experience of such cases, whether or not, and at what periods of his history, he shewed indications of insanity; leaving the judges and jury to decide from the time, degree, and kind of insanity, as to the validity of the plea in exculpating the prisoner from punishment. In such cases the question for the jury comes to be, Was the insanity or aberration of mind at such a time, of such a nature, and in such a degree, as legally to exculpate him? Or was the state of the individual such as to ren-

der it probable that the crime had been committed in a fit of insanity ?

By a personal interview with the person alleged to be insane, though we may not discover that he is insane, we may see that he is not quite right. For, in most of these cases, there is something about the individual, which makes him unlike the generality of other people. This state is often very obvious, though it is not easily described. It struck me very forcibly at my interviews with each of the individuals whose cases I have just described. There seemed, in all of them, some want of intellect. They did not seem to possess the same composure of mind common to other people. They did not shew that ready and rational apprehension of subjects talked of, followed by the sensible remarks we observe in ordinary persons. They had each a low degree of intellect, and a great look of cunning. Each possessed a degree of imbecility, particularly Barclay. They spoke rationally and with consideration, but not with ordinary energy or depth of reflection, consequently their judgment appeared to be weak. They had each a vacant unsettled look. The eyes of Waters, Stirrat, and Barclay, were particularly unsettled. In Howison this was not so much the case. He seemed to have more depth of mind, but a greater want of mental activity. While the others seemed at times quick and alert, he seemed sullen, sluggish, and indolent ; so that his apparent apathy at the crime he had committed was not to be wondered at. He certainly had the look of cunning and ferocity ; so much so, that in his presence other persons felt afraid. The others both expressed and seemed to feel deep regret and contrition for their deeds, which they confessed ; while Howison concealed his crime to the last.

From all that can be learned of Howison's history, it appears evident that his mind had become not quite sound, and that at times he had shewn indications of insanity. But it is also to be observed that the degree of unsoundness that existed, did not prevent him from taking care of himself ; from being correct and honest in his dealings ; or from appearing, to the people with whom he lodged, rational and intelligent in distinguishing between right and wrong. We cannot help arriving at the

conclusion, therefore, that his case, in its most favourable aspect, was one in which the plea of *insanity* was not made out to have existed in so complete a degree, at the time of the murder, as the law requires, to exculpate him from the responsibility attached to it. Yet he certainly was affected with that form of insanity called moral insanity, in which, though the intellectual faculties are not much affected, the individual is nevertheless insane; and he sometimes feels irresistibly urged by strong propensities to commit acts which he is conscious are wrong, and which his intellectual faculties may not be sufficiently powerful to make him resist by their counteracting power.

From the lengthened discussion of this subject into which I have entered, and which its great importance seemed to demand, not only the difficulties of it must be apparent, but also that much danger may arise from the present state of the law upon the subject being acted upon. For, an individual may be so disordered in his mind that he may be insane, and yet it may be impossible to prove that absolute alienation of reason, and ignorance of right and wrong, which the law requires before admitting the plea of insanity to entitle a criminal to immunity from punishment.

It should be kept in mind, too, that insanity may shew itself only in what phrenologists have termed the *affective dispositions*, as well as in the *intellectual faculties*; that it may be discovered in a morbid state of the animal propensities and moral sentiments, as well as in the perceptive and reflective faculties. And that when disease affects one part, the balance of the whole is so changed, that the individual should not, while it continues or is liable to return, be considered an accountable moral agent.

The only test of insanity which appears to have been hitherto sought for and considered conclusive, is some incoherence, illusion, or hallucination on the part of the individual; in short, evidence of derangement of the intellectual faculties. But it has been shewn, that there may be complete insanity without any such symptoms being apparent.

Nothing can be more diversified than the different degrees and modifications of moral imbecility and insanity. Hence

the difficulty of the subject, and the difference of opinions occasionally given by medical men on particular cases.

In conclusion, from what has been said on this subject, it appears that, in some cases, homicide is the result of maniacal delusion ; in others it arises from moral insanity ; while in others, it takes place from the morbid impulse of homicidal madness. But it is to be feared that, in most cases where this plea is urged, crimes have taken place from the passions and animal propensities not being properly controlled by the intellectual faculties, possibly from natural imbecility and want of cultivation. Such cases are most difficult to deal with. Because the individual may not be incoherent, or shew any hallucination or irrationality in conversation ; but his intellectual powers may be so weak, and his other propensities so strong, that he may not be able to fix himself to any profession to earn a livelihood ; and from the passions of avarice, anger, and revenge becoming ungovernable, he becomes dangerous to society ; yet such an individual cannot be said to be insane.

In all doubtful cases, however, it is necessary and proper that an opinion most favourable for the pannel should be formed ; more especially as an opinion to the effect of his having committed homicide through insanity, does not acquit him altogether, but only affords grounds for a commutation of his sentence, to that of confinement for life.

CHAPTER XIII.

ON THE MODE OF CONDUCTING THE INSPECTION OF DEAD BODIES IN MEDICO-LEGAL CASES, AND FRAMING MEDICO-LEGAL REPORTS.

IN consequence of the full manner in which the causes of death by external violence, and the medico-legal examination of wounds, have been treated in the preceding chapters, the remarks requisite upon the mode of conducting the medico-legal examination of dead bodies will be very brief.

1. In medico-legal cases, the inspection should be made by at least two properly qualified medical men. This is necessary, because the testimony of two witnesses is required to substantiate facts in courts of law. Besides, one might overlook things of importance that would not escape two. They should proceed to the duty imposed upon them, with impartial and unbiassed minds; and be careful to adopt no opinion which they cannot establish on scientific grounds. They should also proceed deliberately, and not allow themselves to be hurried in their examination.

2. The medical inspectors should not proceed to examine the body without a regular *warrant* from the properly constituted legal authorities. If they have not this, they are liable to be obstructed and fettered in their examination, by the unreasonable and improper interference of the friends of the deceased, who may even have an interest in obstructing the proceedings.

A warrant is necessary, also, to give power to exclude improper persons from being present at the inspection, who may intrude themselves either from curiosity or otherwise. There can be no objection, however, to one or two friends of the deceased being present, if they are neither the suspected parties, nor the principal witnesses in the case. Neither could there be any reasonable objection to the presence of one or more me-

dical men on the part of the accused, if desired ; for this may be said to be an important part of his trial.

3. In addition to the usual instruments required for opening the different cavities of the body and the spinal canal, a measure for fluids, a lineal measure, and an apparatus for weighing, may also be necessary.

4. Although a disease or wound sufficient to account for death, should be found in one of the cavities, it is in general necessary to open and examine the others also, in order that there may be no defect afterwards found in the proof from this not having been done. There may be some exceptions to this, in cases of individuals who, in perfect health, have been suddenly killed by extensive or severe injuries.

5. In all cases of suspected murder, a complete and thorough inspection of the dead body must be made by opening each of the great cavities, and, in some cases, the spinal canal also, before a proper medical opinion can be given upon the cause of death. Numerous examples might be adduced to illustrate this, but I shall only mention one.

CASE 236.—A man received what seemed a very trifling wound at the upper part of the arm near the axilla. It seemed to be so insignificant at first as not to require any minute examination. But on opening the body after death, the axillary artery was found to have been wounded, and to have produced great hæmorrhage into the cavity of the chest.

The body not having been inspected till *putrefaction* has taken place, may, in some cases, weaken the medical evidence as to the cause of death, or even prevent any medical opinion being formed upon the case.

CASE 237.—A man and his wife, of notoriously bad character, were tried for the murder and robbery of — Philip, a Jew, at Edinburgh, a few years ago. The Jew was last seen in the company of these individuals in Leith ; and several watches and other property of the Jew was found in their possession, of which they could give no proper account. His body was found

in a field on the Easter Road between Edinburgh and Leith, eight or ten days after he had been last seen alive. It was inspected by Mr W Brown and myself; but, the weather having been very hot, the soft parts of the cranium and face were quite black, putrid, and partly eaten away by maggots, with which the head was completely covered. The bones were entire, but the brain was almost fluid from decomposition. In short, no correct opinion could be formed as to the cause of death, so that the charge of murder could not be established.

But even where putrefaction has proceeded to a considerable extent, important information may be obtained by an examination of the body.

CASE 238.—J. Henderson was tried at Perth, September 1830, for the murder of — Millie, his master. Millie, a respectable weaver, who lived alone, at the village of Monimail, in Fifeshire, suddenly disappeared, his house was locked, and Henderson, his workman, absconded. In four or five weeks after, the body of Millie was found buried in the garden behind the house.

When the body of Millie was examined by medical men, putrefaction was found to have proceeded to a considerable extent; yet they were able to discover a wound on each side of the head, with fractures of the skull penetrating into the brain, sufficient to have caused immediate death. A hammer with blood upon it, was found in the house, and there was also blood on the loom where Millie had worked. The house had been robbed to a considerable extent. Henderson was convicted and executed.

Injuries of the bones, as fractures of the skull, have been discovered many months and even years after interment.

The external parts of the body may be decayed, while the internal parts may be less so, as the lungs of infants, or the viscera of the abdomen from the presence of poisons, which act as antiseptics.

6. Before proceeding with the dissection, it is often of im-

portance to be furnished with an account of the circumstances attending the death of the individual, so far as these can be ascertained ; for this often leads to an attention to important particulars which might otherwise escape notice. Attention should also be directed to the situation and position in which the body was found, the state of the clothes, blood near the body, other marks of violence, foot-prints, marks of struggling or running, lethal weapons, &c. For it often happens, that, by attention to these circumstances, the guilt or innocence of the accused is established.

7. The body is to be stripped and examined *externally*. The state of the body, the apparent age, the position, and the expression of the countenance, are to be particularly observed. Stains, marks of violence, or other injury, are then to be looked for, and carefully noted. Foreign bodies in wounds, or in any of the natural passages, are to be withdrawn and preserved ; and in cases of wounds, any lethal weapon found should be compared with the wound.

8. In proceeding with the dissection of the body, in order to examine it *internally*, it is best to open first the cavity in which the cause of death is supposed to be situated. If, for example, a person has died from asphyxia, and if the head is opened first, the whole blood congested about the right side of the heart may escape from the cranium by the jugular veins, and thereby materially alter the appearances within the thorax. Wounded and diseased parts should be carefully cut out and preserved for further examination and reference.

The appearances presented by the viscera of the great cavities, are to be carefully marked as they occur, whether in a healthy or diseased condition.

9. In reporting upon a case investigated, it is perhaps the best mode to make out two reports ; the *one* a short general statement of the result of the examination as to the cause of death ; the *other* containing a full account of the appearances found in the body, and the inferences deduced from them. The first of these should be framed with a view to be understood by a jury, and should therefore be free from *technicalities*. The second should contain the whole facts of the case, and con-

clusions drawn from them, such as might be laid before other medical men for their opinions upon it. Sometimes this last report is virtually given in the form of a precognition, taken by the Procurator-Fiscal.

10. Besides a statement of the facts of the case, and his opinion upon them, the medical inspector or others may be required to read and consider the precognition containing the general evidence, or to hear the whole evidence given in court regarding the case, in order that he may be able to say whether or not the mode of death alleged, is consistent with the facts stated in the medical and general evidence. An additional report upon this may therefore be required, either verbally or in writing.

11. Every information bearing upon the medical part of the case, should be furnished to the medical inspectors, previous to their examination of the body and reporting upon it. In examining the witnesses, the assistance of the medical men may be of service in preparing the precognition; and, in some cases, it is of importance that they inspect the place where the body was found.

12. As good general practitioners, particularly in the country, may be very indifferent in the management of medico-legal cases, from their limited practice in this branch, it is well for them to obtain the assistance of those more experienced from large towns, in the investigation of serious and important cases.

13. In precognitions taken by the public prosecutor, or by the accused for his defence, there is no occasion for any reserve as to either the facts or conclusions concerning the case. The medical witness should avoid all mystery or concealment, and thus shew that he is to give upon it, a fair, candid, and unbiassed opinion.

APPENDIX.

No. I.

OF THE FORM OR MODE OF PROCEDURE IN CRIMINAL CASES OF HOMICIDE.

SECTION I.

IN SCOTLAND, preliminary proceedings in cases of death under suspicious circumstances are instituted and carried on for the Crown, by the Procurator-Fiscal for the district in which they occur, under the authority and warrant of the Sheriff or other local Magistrate.

The proceedings are therefore commenced by a petition to the local Magistrate, setting forth the circumstances of the case, and craving his WARRANT to make a full enquiry into them.

This form of inquiry, which is conducted in a private manner, stands in the place of the Coroner's Inquest in ENGLAND, to which it is in many respects preferable:—*first*, because the Coroner's Inquest is very hastily got up, so that often crude and unwarranted opinions are given as to the cause of death; *secondly*, because the circumstances attending the death may have caused a great sensation and panic in the public mind, by which the circumstances connected with it are often exaggerated and misrepresented by the witnesses called—not wilfully, but from erroneous information and the excitement of the moment; *thirdly*, because the circumstances attending an immediate public inquiry cannot fail to prejudice, in some

measure, the minds of the public and those who may be called to sit as jurors upon the case; and, *fourthly*, in cases demanding inquiry, but where nothing criminal has occurred, the public exposure of private and domestic affairs is avoided.

The first and most important part of the preliminary proceedings consists in obtaining, by petition, a warrant from the local Magistrate to inquire into the cause of the deceased's death—*1st*, by medical evidence obtained by a *post mortem* examination of the body; and, *2d*, by inquiries into the circumstances attending the death. As these require the assistance of the medical jurist, the warrant of the Magistrate chiefly contains powers to enable him to conduct the necessary procedure. But other necessary powers to the Procurator-Fiscal, for securing guilty parties and obtaining evidence from witnesses, are generally included in the same warrant.

Whether a warrant to make inquiries is issued by a Magistrate or Coroner, there are certain powers which, though essentially necessary to be included, are nevertheless often omitted. These consist of power to prevent injury to the body by other parties—to disinter the body, if necessary—to remove injured or diseased parts, in order to examine them more particularly, or refer to them afterwards, if necessary. These powers are necessary—*first*, because other medical men who have been in attendance, or who may have been called in, may inspect the body of the deceased without those appointed by the public authorities being present, by which the ends of justice might be frustrated; *secondly*, the body may have been buried, which is sometimes done very hurriedly; and, *thirdly*, because the examination of injured or morbid parts, with their contents (as in cases of poisoning), which requires much time and care, can be more satisfactorily done after the dissection, but which might be objected to by the friends of the deceased; *fourthly*, because other medical men are often consulted afterwards, to whom it might be necessary to exhibit the injured or diseased parts.

The following, therefore, appears to me to be the proper form for the petition and warrant for carrying into effect the necessary preliminary inquiries, in cases of suspected homicide:—

*Form of Petition of Procurator-Fiscal to a local Sheriff, Magistrate,
or Justice of Peace.*

PETITION, &c.

Humbly sheweth, that A. B. having died under circumstances requiring investigation into the cause thereof, for the public interest and the ends of justice, I hereby respectfully petition your Lordship to grant warrant to Drs C. and D., or other medical gentlemen, to open and inspect anatomically the body of the said deceased A. B., with power to remove, temporarily, any part of the same which may be deemed necessary for ascertaining the cause of death, or otherwise furthering the ends of justice, and in order that the said medical men may report without delay as to the cause of the death of the deceased A. B.

I also crave power and authority from your Lordship to officers of court to watch, or take possession of, the body of the deceased A. B. till examined, apprehend guilty parties, summon witnesses, &c. concerning the death of the said A. B.

SECTION II.

FORM OF MEDICAL REPORTS IN CASES OF SUSPECTED
HOMICIDE.

Medico-legal Reports are required to contain a short simple statement of the facts found on dissection of the body of the deceased, and the opinion of the medical reporters as to the cause of death, founded on these.

Several different modes of doing this have been suggested. One by writing out, at the moment, a statement of the facts and appearances ascertained at the dissection of the body of the deceased, and afterwards making a report upon these as to the cause of death; another, by making notes at the dissection of the circumstances found, from which a report of the appearances ascertained, and the opinion as to the cause of death, are afterwards to be made up and delivered to the proper authorities; and a third mode is by drawing up, at the time of the dissection, a short report of the circumstances found and the cause of death.

As these are only different ways of accomplishing the same end, which may be equally well accomplished by either, it would be wrong to say that a preference should be given to

any one of them ; more especially as each of them may be the best under particular circumstances ;—thus, if the facts are few, and the case quite clear, as it may be of the utmost importance to the public-prosecutor to have the report and opinion of the medical inspectors immediately, and there can be no occasion for delay, so it should be forthwith written and transmitted. In other cases, some time may be necessary for consideration and for ascertaining the symptoms before death, so that some delay may be necessary in making up the report. But in all cases it is necessary and proper to keep steadily in view these two particulars,—the *facts* and the *opinions* founded on them ; so that they shall neither be mixed up together, nor any opinion given which is not a legitimate conclusion from the facts ascertained.

EXAMPLE:—

The following is a copy of the report made up by Dr Craigie and myself in a case of murder :—

EDINBURGH, 29th January 1840.

We hereby certify, on soul and conscience, That, by virtue of a warrant from the Honourable Bailie Grieve, one of the Magistrates of this City, we have this day inspected, both externally and internally, the body of Sarah Wemyss, which had been removed from Plainstone Close, Grass-market, to the Police Office, who is said to have died on the 27th current. The body appeared to be that of a person about 30 years of age, and in good health.

Externally.—We found marks of contusions upon the forehead, above the left eye, behind the right ear, and upon the right fore-arm, at each of which parts there was ecchymosis or effusion of blood under the skin. There was also a lacerated wound on the right external ear.

Internally.—On removing the upper part of the skull and dura mater, or external covering of the brain, we found a general effusion of blood over the whole surface of this organ. This effused blood was situated between the arachnoid coat and pia mater, the two thin membranous coverings of the brain ; it was in a coagulated state, and formed a thin cake, more dense at some parts than at others. At the base of the brain and medulla oblongata, where the principal nerves of the body originate, the quantity of effused blood was greatest ; these parts being covered with a coagulum which varied in thickness from a line to a quarter of an inch.

In each of the ventricles of the brain, there was a coagulum of effused blood, and a considerable quantity of transparent serous fluid.

No fracture of the skull could be perceived; but the bone was not only above the ordinary thickness, but was remarkably compact and dense in its texture.

The viscera of the chest and belly were in a healthy state.

We are of opinion, that sudden death in this case was occasioned by extravasation of blood upon the surface, and into the ventricles of the brain; and that this extravasation of blood had been produced by concussion of the brain from external violence.

(Signed)

DAVID CRAIGIE, M.D.

ALEXANDER WATSON, M.D.

SECTION III.

FORM OF REPORT IN CASE OF INFANTICIDE.

There being several peculiarities in the Reports concerning cases of Infanticide, on account of there being evidence required of the identity of the body found, and the numerous circumstances necessary to be noticed, the following example is here given.

EDINBURGH, 14th May 1839.

We hereby certify, on soul and conscience, That, by virtue of a warrant from the Honourable the Sheriff of Edinburghshire, we this day inspected the body of a female infant, which was delivered to us by John Gordon, Sheriff-Officer, and Adam Colquhoun, Sergeant-Major of Police, as the body given to them at near Edinburgh, on the 12th instant.

Externally.—The body presented a plump and healthy appearance. It measured $21\frac{3}{4}$ inches in length, and weighed $8\frac{1}{2}$ pounds. There was general lividity of the surface of the body, but particularly of the face, lips, and ears. The navel-string measured $7\frac{1}{2}$ inches in length, and the extremity of it was tied with a piece of black-cotton cloth, such as is used for the lining of clothes. The body had either not been washed at all, or only partially. The body possessed very little rigidity, but no putrid odour.

The integuments surrounding the neck exhibited a natural skin colour without lividity; but at several places, on each side of the wind-pipe, the cuticle had been injured and peeled off, so as to present red patches somewhat hard and dry.

Internally.—The cavity of the chest was well dilated and filled by the

lungs. The lungs were of a light-red colour, except at their posterior parts, where the colour was somewhat livid;—they were soft, spongy, and crepitating to the touch;—they floated in water, even though the other viscera of the chest, wind-pipe, and tongue, were attached to them;—they emitted no putrid odour, and frothy mucus could be pressed out from them. The trachea and bronchial tubes were natural in appearance. The former contained some portions of yellow viscid mucus, and the latter contained more fluid frothy mucus.

The heart, but particularly the right side of it, was much distended with dark-coloured fluid blood. Its valves and other parts were natural.

The viscera of the belly were all of the usual natural and healthy appearance at the time of birth. The stomach contained some mucus, but no milk; the large intestines were distended with meconium; the bladder was empty.

In the cavities of the chest and belly, there were small quantities of serous fluid, but the whole of this would not have amounted to two ounces.

No unusual appearance was observed in the head, except venous congestion in the brain and its membranes, which was considerable.

We are of opinion, that the following inferences may be drawn from the above appearances which were presented in this case.

1st, That the infant had been born at the full time of utero-gestation, but without the assistance of an experienced accoucheur; also, that it was natural and healthy in appearance.

2d, That the infant had been born alive and breathed, but had only lived for a short time.

3d, That the infant had upon it all the marks or indications of death by asphyxia or suffocation.

4th, That the only indication of any particular mode or kind of suffocation existed on the neck; the marks observed there being such as might have been made by the nails of the fingers applied to make pressure upon the throat.

5th, No other marks of injury or cause of death having been observed upon the body, death by asphyxia is rendered more certain.

(Signed) A. B.
 C. D.

SECTION IV.

FORM OF CERTIFICATE IN CASES OF INSANITY.

Certificates regarding insane persons (including different degrees of fatuity and idiocy) require to be expressed in con-

formity to certain Acts of Parliament regulating mad-houses and the custody of dangerous lunatics, in order that they may be proper to be acted upon. Such certificates may also be required in order to ascertain whether an individual, charged with a criminal offence, is a proper and fit object for trial and punishment, or should be sent to a lunatic-asylum. In these it must be stated whether the "furious or fatuous person or lunatic" is "in a state threatening danger to the lieges."

EXAMPLE :—

I hereby certify on soul and conscience, That I have this day visited, conversed with, and examined A. B., as also obtained other evidence concerning his state of mind, and am of opinion that he is in such a state of mental derangement, (*specifying insanity, fatuity, idiocy, or any combination of them as the case may be*), that his going at large threatens danger to the lieges.

(Signed) C. D. Physician or Surgeon.

No. II.

SUGGESTIONS

FOR THE

MEDICO-LEGAL EXAMINATION OF DEAD BODIES,

BY

PROFESSORS TRAILL, CHRISTISON, AND SYME:

WITH

ADDITIONS AND NOTES,

BY

ALEXANDER WATSON, M.D.

* * In the following Suggestions we have not attempted to lay down full and minute instructions for the complete examination of dead bodies in all possible medico-legal cases ; because such a plan would involve a statement of many long details, of which every medical man ought to acquire a competent knowledge in the course of ordinary study and practice, and especially in performing ordinary dissections for discovering the signs of disease. We have thought it of more importance to confine our attention to points which are of essential consequence in Judicial Investigations, or which are apt to be neglected in common dissections.

It will be remarked, that we propose to turn the attention of the Medical Inspector to some points which are often inquired into, not by him, but by magistrates, or other official persons, not of the medical profession—such as, the place where the body is found ; its position when first seen ; surrounding objects ; the clothes, &c. This we have been led to do, because we have had occasion to observe, that on such points important articles of evidence have been overlooked, owing to the absence of a medical man, to whom alone their importance would have been apparent. On the whole, however, such matters would probably be best investigated by a law-officer, with the aid of a medical mn.

[From the importance of the subject, I have considered this to be a useful addition to the present work. It was drawn up at the request of the Law-officers of the Crown, and circulated by them. Any additions I have considered it necessary to make, are included in brackets, or form foot-notes.—A.W.]

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SUGGESTIONS

FOR THE MEDICO-LEGAL EXAMINATION OF DEAD BODIES.

SECTION I.

GENERAL DUTIES OF INSPECTORS.

1. It is of great moment that the authorities intrust the performance of medico-legal dissections only to practitioners of eminence or respectability, chosen in general from the nearest considerable town ; and that, in particular, the medical man who attended the deceased before death, or was the first to see him after, shall not, according to a common practice at present, be appointed one of the two Inspectors as a matter of course, nor unless he be known to be qualified for the duty. Where the medical man who saw the deceased before death, or was the first to see the body after it, is not one of the official Inspectors, he should be requested to be present, to communicate information. [If an accused person, or his friends, desire the presence of any particular medical practitioner, it seems fair and proper that he should be allowed to attend also.]

2. More attention should be paid than is at present usual

by the law authorities to supply the Medical Inspectors with information previously acquired on all points which are likely to bear on the medical part of the inquiry. For this end it appears to us, that Procurators-fiscal should supply the Inspectors with such part of the precognition as may have been previously taken ; and that one or more of the persons best acquainted with the circumstances of the case should accompany the Inspectors, and be at hand during the examination to answer their questions ; and that in complex cases advantage would often be derived from requesting one of the Medical Inspectors to aid the law authorities in conducting the precognition, wherever it touches the medical evidence.*

3. Medical men ought to be on their guard against performing dissections in cases *evidently judicial*, without previously warning the proper law authorities, or without a warrant ; for instances have come under our notice, where, owing to the want of proper support, obstructions were thrown in the way, which might have proved fatal to the value of the investigation ; and besides, the premature disclosure of the results of the inspection might frustrate other important steps of the precognition.

4. It is desirable that the Medical Inspectors shall have an opportunity of viewing the body before it is undressed or moved from the spot where it was first found. If the body has been previously removed or meddled with, they ought to inform themselves accurately as to its original position. In many cases it is material that they personally visit the place where it was first seen ; and they should inquire minutely into all the particulars connected with the removal of it.

5. In cases where the body has been buried, and disinterment becomes necessary, it ought not to be removed from the coffin, except in presence of the inspectors.

6. Where a considerable period has elapsed between death

* In many cases of poisoning, &c. it is impossible to arrive at a correct knowledge of the medical facts in any other way. We understand there is nothing in the Scotch Law of Evidence to prevent a medical man being so employed, who may afterwards have to appear as a witness on the trial.

and disinterment, the inspection must in all cases be proceeded with, although the body be found in a state of decay, unless the Inspectors can positively say that the progress of decay is such as to render the examination nugatory in relation to its special objects. The degree of decay which will justify such an opinion will differ with a variety of circumstances which cannot be properly specified here. It may be observed, however, that where injuries of the bones are to be looked for, or the traces of certain poisons, it is scarcely possible to assign the limit at which an inspection must of necessity be fruitless. It is of moment to remember, that the internal organs are often in a great measure entire, although the external parts are much decayed. The inspection, where the body is much decayed, will be rendered greatly less annoying to those present, by frequently washing the parts successively exposed with a solution of chloride of lime, of the strength of one part in forty; but this must be carefully kept clear of any parts which may afterwards require to be examined for poison.

7. No one should be allowed to be present at the examination out of mere curiosity. But especially every individual, not of the medical profession, ought to be excluded, who is likely to be a witness either on the precognition or trial; and, consequently, any one who attends to give information, if likely to be a witness, should remain in an adjoining room. The reason for this rule is, that the medical inspection often furnishes good tests of the value of otherwise doubtful evidence of a general nature; and it is therefore necessary that the general witnesses should not have an opportunity of knowing what is observed in the dissection of the body.

8. The examination and dissection of the body should not be undertaken, if possible, except with sufficient daylight in prospect to allow the whole inspection to be made without artificial light.

9. While the one Inspector conducts the practical details of the examination, the other should take notes of its successive steps,—indicating all the points inquired into, with the observations made, and appearances presented, negative as well as positive,—and stating simple facts only, without either

generalizations or opinions. These notes should be looked over by both Inspectors before the body is sewed up, so that omissions in the notes or in the inspection itself may then be supplied ; and the notes, properly [signed], dated and sealed, must be lodged with the law-authorities, a copy being preserved, if thought advisable, by the Inspectors.

10. The Inspectors must deliver to the same authorities, and within two days, where no farther examination is required, a distinct report containing their opinion on the case, with the reasons succinctly but clearly stated. They must understand that they cannot found their opinion on any facts, represented to have been ascertained by themselves during the inspection, which are not specified in their notes.

11. Great attention must be paid not to express any premature opinion of the nature of the case, from appearances presented on a partial examination ; because the real cause of death often turns out very different from what it seems in the first instance to have been. In cases of injuries or apparent drowning, hanging, strangling, burning, and the like, it should always be remembered, that the appearances of such death may have been accidentally induced or purposely contrived after death, while the actual cause of death is different, and only to be detected by a careful and thorough inspection of the whole body.

12. It is a good general rule, that all injured or diseased parts should be removed and preserved, wherever this is practicable. Soft parts, except what are to become the subject of analysis in the search for poison, are best preserved in a concentrated or strong solution of common salt.

13. When any portions of the body, or any substances found in or near it, are to be preserved for further examination, they ought never to be out of the custody of the Inspectors, or of a special law-officer. They must be locked up in the absence of the person who keeps them. When they are to be transmitted to a distance they should be labelled, and the labels signed by the Inspectors ; and, after being properly secured and sealed, they should be delivered by the Inspectors themselves, or the special law-officer, at the coach-office by which they are to be forwarded.

SECTION II.

NECESSARY IMPLEMENTS.

14. Besides the ordinary instruments used in common dissections, the Inspectors should be provided with a foot-rule, and an ounce-measure graduated to drachms, for measuring distances and the quantities of fluids,—a few clean bladders for carrying away any parts of the body which it may be necessary to preserve for future examination,—and, in cases of possible poisoning, three or four bottles, of 8, 12, and 16 ounces, with glass stoppers or clean corks, for preserving fluids to be analyzed. [It is also necessary to be provided with paper, pens, ink, and sealing-wax.]

15. All distances, lengths, surfaces, and the like, whose extent may require to be described, ought to be actually measured; and the same rule ought to be followed in ascertaining the volume of fluids. Where large quantities of fluids are to be measured, any convenient vessel may be used whose capacity is previously ascertained by the ounce-measure. Conjectural estimates and comparisons, however common even in medico-legal inspections, are quite inadmissible.

SECTION III.

EXTERNAL ASPECT AND EXAMINATION OF THE BODY.

16. The importance of the external examination, and the particulars of it to be chiefly attended to, will vary in different cases with the probable cause of death. It comprehends:

1. An examination of the position of the body when found.—
2. Of the vicinity of the body, with a view to discover the objects on which it rested, [might have fallen upon, or been suspended from,] marks of a struggle, signs of the presence of a second party about the time of death, or after it, weapons or other objects, the property or not the property of the deceased, the remains of poisons, marks of vomiting; and where marks of blood are of importance, and doubts may arise as to their really being blood, the articles presenting them

must be preserved for farther examination.—3. Of the dress, its nature and condition, stains on it of mud, sand, or the like, of blood, of vomiting, of acids, or other corrosive substances, in the case of suspected poisoning, marks of injuries, such as rents or incisions; and where injuries have been inflicted on the body, care should be taken to compare the relative position of those on the body and those on the clothes; and where stains apparently from poison are seen, the stained parts are to be preserved for analysis.—4. Ligatures, their material and kind, as throwing light on the trade of the person who applied them, the possibility or impossibility of the deceased having applied them himself, their sufficiency for accomplishing their apparent purpose, &c.

17. The Inspectors will commence the examination of the body itself by surveying the external surface and openings. Before cleaning it, they will examine it on all sides, not neglecting the back, as is often done, and look for marks of mud, blood, ligatures, injuries, stains from acids, and the like, foreign bodies, or injuries within the natural openings of the body, namely the mouth, nostrils, ears, anus, vagina, and urethra. If there are impressions of finger-marks, they will consider which hand produced them. If there be any doubt about stains being blood, the skin presenting them must be preserved for analysis. If there be acid stains, or other probable remains of poison, these must also be preserved. Marks of injuries are not to be minutely investigated at the present stage, unless they consist of such stains as may be removed by the subsequent washing of the body; and in that case, among other points to be attended to, the Inspectors will consider, from their shape, surface or colour, what weapons might have produced them. The ordinary places for the impressions of ligatures are the neck, the wrists, the ankles, and the waist. The degree of looseness or rigidity of the joints, and the degree of warmth of the trunk and extremities, should be noted in the present stage of the proceedings; in other cases the progress of putrefaction, as indicated by the odour of the body, the looseness of the cuticle, the colour of the skin, and formation of dark vesicles on it, the evolution of air in the cellular

tissue, the alteration of the features, the softness of the muscles, the shrivelling of the eyes, the looseness of the hair and nails.

18. In this part of the examination, it will sometimes be necessary to observe the particulars by which the body may be identified. These are numerous. But the most important are the stature, [the age and sex,] the degree of plumpness, the size and form of the nose and mouth, the colour of the eyes and hair, the state of the teeth, warts, naevi, deformities, scars of old wounds; [and, if a woman, marks of her having had one or more children.]

19. The body is next to be washed, and the hair of the head shaved, or at least closely cut; and a thorough examination of the whole integuments is again to be made. At this stage the Inspectors will look particularly for the appearance of lividity, noting its chief seat and its relation to the posture in which the body was found,—for impressions on the skin of objects on which it had rested,—for marks of injuries, more especially contusions, taking care to ascertain their real nature, by making incisions through the skin,—for marks of disease, such as eruptions, ulcers, and the like, more especially on the genital organs,—for marks of burning,—for marks of concealed punctures in the nostrils, mouth, external openings of the ears, the eyes, the nape of the neck, the arm-pits, the anus, the vagina, and beneath the mammæ or scrotum; in infants, also in the fontanelles and the whole course of the spine. At this stage, wounds and other injuries should be carefully examined, but not probed, except very cautiously, above all, if situated over any of the great cavities.

SECTION IV.

DISSECTION OR INTERNAL EXAMINATION OF THE BODY.

20. In commencing the dissection of the body, it must be laid down as an invariable rule, that all the great cavities should be examined, and also every important organ in each, however distinctly the cause of death may seem to be indicated in one of them. In general, it is right even to examine the cavity of the spine, at all events its upper portion.

21. In examining the organs situated in the several cavities of the body, the Inspectors must be guided in a great measure by their ordinary anatomical and pathological knowledge.

22. The Inspectors should begin with that cavity over which there is a wound or other mark of injury. Or, if there be an injury on the extremities, the dissection ought to commence there. In the absence of any such guide, that cavity should be taken first where the circumstances of death, so far as they are ascertained, may lead the Inspectors to expect unusual appearances. In other cases, it is best to lay open the chest and abdomen; to take a general survey of the parts exposed, without disturbing them materially; or to proceed to the head, which may be examined thoroughly in the first instance; afterwards to examine carefully the chest and belly; and the spine may be reserved till the conclusion. Wherever unusual appearances are discovered in the first cursory survey, the anatomical examination ought in general to be begun there.

23. In examining the several regions of the body, it is to be observed, that wherever a wound, or other obvious injury of the external parts, lies in the way of the ordinary incisions, that part must be avoided, so as to leave the external injury unaltered.

24. The most approved mode of opening the head in medico-legal cases is, after dividing the integuments from ear to ear, and reflecting the scalp over the forehead and occiput, to make the usual circular incision through the bone about an inch above the orbits in front and over the occipital protuberance behind, cutting through the outer table of the skull only, and finishing the incision with the chisel and mallet;*—and to raise the skull-cap from before backwards, taking care to detach the dura mater from the skull with the handle of the scalpel or a spatula, where it adheres firmly.

25. The ordinary mode of examining the membranes of the brain and the brain itself answers well in medico-legal dissec-

*[Here we completely differ as to this being “the most approved mode of opening the head in medico-legal cases.” The chisel and mallet should never be used where there is any likelihood of finding a fracture of the skull; for how could this be distinguished from fractures made with the mallet?]

tions. Effusions of fluid within the skull should always be measured. After the brain is removed, the dura mater ought to be stripped from the base of the skull to facilitate the search for fractures there ; which will of course indicate external violence. After the removal of the brain, the upper part of the spinal canal should be examined through the foramen magnum, before any part of its course be laid open ; and search should be particularly made for the dislocation or other injury in the region of the atlas and dentata. In cases of fatal fractures of the head, the strength of the bones should be attended to. In cases of extravasation within the head, the state of the coats of the larger cerebral arteries should be examined.

26. The best mode of opening the spine is, after having finished the examination of the brain,—to cut through the integuments from the occiput to the coccyx,—to lay the vertebræ thoroughly bare on each side by cutting away the muscles,—to make an incision with the saw on each side of the skull, from the postero-inferior angle of the parietal bones into the lateral edge of the occipital hole,—to remove the triangular portion of the occipital bone thus detached,—and then to cut the rings of the vertebræ on each side with the bone-nippers or spine-knife,* beginning with the atlas. The only exception to this course occurs where there is reason to think that the bones are injured ; in which case, the laying open of the canal should stop at the distance of two or three vertebræ from the injury, and the injured bones, with two or three adjacent vertebræ on each side, should be removed entire before the examination is extended farther down the spine.

27. The best mode of exposing the organs of the throat is to cut through the lower jaw-bone at the chin, to cut the soft parts close to the inner surface of each half of the bone backwards, and then to turn the two segments outwards.

28. The best mode of examining the organs situated in the throat is,—after dividing the jaw-bone at the chin, and turning its two segments outwardly, as advised in § 27,—to dis-

* [Here a preference should be given to the saw, by which it is not only more easily accomplished, but there is no risk of confounding previous fracture with that made in dissecting.]

sect the soft palate from the bone, and, proceeding backwards, to detach the whole soft parts from the base of the skull and vertebræ down to the sternum, leaving them connected with the organs in the chest. Besides the ordinary points to be attended to in this part of the examination, the presence of venereal or other ulcerations is a matter requiring attention in many cases.

29. It is necessary to examine the pharynx and gullet, the larynx, trachea, and its greater ramifications, the lungs, the heart, and the great vessels, with particular care; because here are most frequently found the causes of sudden natural death. In examining the heart, each auricle and each ventricle ought to be laid open by an independent incision of its parietes; and this should not intersect either any of the valvular openings or the septum cordis.

30. For laying open the chest and abdomen, the most convenient method is to make an incision through the underlip, down the fore-part of the neck, chest, and abdomen, to the pubes,—then to dissect back the integuments along the whole line, taking away the muscles of the chest with the skin, but leaving those of the abdomen,—next, to divide the cartilages of the ribs and the remaining parietes of the abdomen round its circumference,—to raise the muscles of the belly, and, proceeding upwards, to raise also the sternum. In separating the sternum from the clavicles, care must be taken not to wound the subjacent vessels; and this may be avoided by the dissector moving each shoulder so as to show the exact position of the sterno-clavicular joints, and then dividing both joints cautiously. In dividing the cartilages of the ribs, the saw is sometimes necessary. The cartilages should be cut as far from the sternum as possible, to give free space for the subsequent examination.

31. In inspecting the organs in the chest, a cursory examination should be first made by turning them over, ascertaining the nature, and measuring the quantity, of effused fluids, feeling for [fractures of the ribs] tumours or other diseases, and opening the pericardium to obtain a view of the heart. The most convenient course to pursue next is, to lay open the left

ventricle and right auricle of the heart, in order to judge of the quantity and state of the blood in both sides of that organ.*—and then to remove the whole organs in the chest, namely the lungs, heart, and gullet, together with the parts dissected downwards from the throat, in one mass, and to examine them in detail on a table. But previously, a ligature should be applied on the gullet, just above the cardiac orifice of the stomach.

32. The organs in the abdomen ought to be turned over, like those of the chest, before any of them is minutely examined; and in the subsequent examination, that organ is to be first proceeded with, in which there may appear to be disease.

SECTION V.

EXAMINATION IN CASES OF WOUNDS AND CONTUSIONS.

33. The most approved mode of examining injuries is, if they be not situated over great cavities, to expose the successive layers of muscles in the manner of an ordinary dissection, observing carefully what injuries have been sustained by the parts successively exposed before they are divided. No advantage will be derived from previous injections of the bloodvessels, even supposing this were always attainable. Careful dissection, with a knowledge of the structure and relations of parts, is a safer guide.

34. The seat of wounds must be described by actual measurement from known points,—their figure and nature also carefully noted,—and their direction ascertained with exactness.

35. Before altering by incisions the external appearances of injuries, care must be taken to consider what weapon might

* [It should be recollected that if the blood is in a fluid state, the quantity contained in the right auricle of the heart may be materially affected by the head having been examined previously, as the blood may have escaped from the heart by the jugular veins.]

have produced them ; and, if a particular weapon be suspected, it should be compared with them.*

36. Apparent contusions must be examined by making incisions through them ; and the Inspectors will note whether there be swelling or puckering of the skin,—whether the substance of the true skin be black through a part or the whole of its thickness,—whether there be extravasation below the skin, and whether the blood be fluid or coagulated, generally or partially,—whether the soft parts below be lacerated, or subjacent bones injured, and whether there be blood in contact with the lacerated surfaces. By these means the question may be settled, whether the contusions were inflicted before or after death.

37. In the case of wounds too, the signs of vital action must be attended to, especially the adhesion of blood to their surfaces, or the injection of blood into the cellular tissue around, or the presence of the signs or sequelæ of inflammation.†

38. Where large arteries or veins are found divided, care must be taken to corroborate the presumption thus arising by ascertaining in the subsequent dissection, whether the great vessels and membranous viscera be unusually free of blood.

39. In the course of the dissection of wounds, a careful search must be made for foreign bodies in them. Where fire-arms have occasioned them, the examination should not be ended before discovering the bullet, wadding, or other article lodged ; and whatever is found must be preserved. Where the article discharged from fire-arms, or indeed any other weapon, has passed through and through a part of the body, the entrance-wound and exit wound must be carefully distinguished by their respective characters.

40. When wounds are situated over any of the great cavi-

* [The characters of injuries should never, if possible, be altered by incisions. The wounded parts should be cut out entire and carefully preserved.]

† The gorging of the cellular tissue in the vicinity of wounds with coagulated blood, or true *ecchymosis*, should be carefully distinguished from what Continental writers term *suggillation*, or the cutaneous infiltration of the colouring matter of the blood, which takes place in the depending parts of a body after death.

ties, they ought not to be particularly examined till the cavity is laid open ; and, in laying open the cavity, the external incisions should be kept clear of the wounds.

41. The organs in the abdomen furnish the best source of information, as to the signs of bloodlessness in presumed death by hemorrhage. [The state of the brain is also a good criterion.]

SECTION VI.

EXAMINATION IN CASES OF POISONING.

42. In examining a body in a case of suspected poisoning, the Inspectors should begin with the alimentary canal,—first, tying a ligature round the cardiac end of the stomach, and two round its pyloric end,—then, removing the stomach and whole intestines,—next, dissecting out the parts in the mouth, throat, neck, and chest, in one mass,—and, finally, dissecting the gullet, with the parts about the throat, from the other organs of the chest. The several portions of the alimentary canal may then be examined in succession.

43. In all their operations they ought to make sure that the instruments, vessels, and bladders used, are quite clean.

44. In cases of supposed poisoning, a minute inquiry must, in the first instance, be made into the symptoms during life,—their nature,—their precise date, especially in relation to meals, or the taking of any suspicious article, their progressive development,—and the treatment pursued. It is impossible to be too cautious in collecting such information ; and, in particular, great care must be taken to fix the precise date of the first invasion of the symptoms and of the previous meals. The same care is required in tracing the early history of the case, where the Inspector happens to visit the individual before death ; and if suspicions should not arise till his attendance has been going on for some time, he ought, subsequently to such suspicions, to review and correct the information gathered at first, especially as to dates. All facts thus obtained should be immediately committed to writing, and ought to form part

of the narrative of the inspection to be delivered to the law authorities.—See § 9, 10.

45. Before inspecting the bodies, the Inspectors, after ascertaining the history of the case, should proceed, if they see cause, to search, in company with the proper law-officer, for suspicious articles in the house of the deceased. These are, suspected articles of food, drink, or medicine,—the vessels in which they had been prepared or afterwards contained,—the family stores of the articles with which suspected food, &c. appears to have been made. All such articles must be secured according to the rules in § 13. for preserving their identity. In this examination, the body-clothes, bed-clothes, floor, and hearth, should not be neglected, as they may present traces of vomited matter, acids spurted out or spilled, and the like.

46. When a medical man is called to a case during life, where poisoning is suspected, he ought as soon as possible to follow the instructions laid down for securing articles in which poison may have been administered.

47. In the same circumstances, it is his duty to observe the conduct of any suspected individual,—were it for no other reason than to prevent the remains of poisoned articles from being put out of the way, and to protect his patient against farther attempts.

48. The whole organs of the abdomen must be surveyed, but particularly the stomach and whole tract of the intestines, the liver, spleen, and kidneys, the bladder; and, in the female, the uterus and its appendages. The intestines should in general be slit up throughout their whole length; and it should be remembered that the most frequent seat of disease of their mucous membrane is in the neighbourhood of the ileo-cæcal valve.

49. In cases where the possibility of poisoning must be kept in view, the contents of the stomach should be preserved,—also sometimes those of the small and great intestines,—and occasionally even those of the gullet.

50. It is generally necessary to ascertain whether any spirituous fluid [or opium] be contained in the stomach. This may sometimes be done by the odour of its contents, but oftener not; so that, where the point is one of evident consequence, it

may be necessary to search for alcohol, by distilling the contents [if any], and examining the distilled liquid, as directed in works on poisons.

51. The intestines may be examined at once by laying open their whole course. The parts where appearances are most frequently found in poisoning are, the duodenum, upper part of the jejunum, lower part of the ileum, and rectum. Care should be taken to preserve their contents in a bottle, and the intestines themselves in a bladder, if they present any unusual appearance which will keep. The stomach should be taken out entire, and its contents emptied into a bottle. The smell proceeding from its contents should be observed when it is first laid open, as this often alters speedily. If the stomach present any remarkable appearance, its examination may be reserved, if convenient, till a future opportunity; but in every circumstance it must be preserved and carried away. The throat and gullet may be examined at once, and preserved with their contents; which, if abundant, may be kept apart in a bottle.

52. No person ought to undertake an analysis in a case of suspected poisoning, unless he be either familiar with chemical researches, or have previously analyzed with success a mixture of organic substances, containing a small proportion of the poison suspected.

53. The Inspectors will learn from the law-authorities, whether, in the event of the discovery of poisoning by them, it is probable that the opinion of some other person practised in toxicological researches may be required; and, in that case, they will take care to use only one-half of the several articles preserved for analysis. They will remember that the stomach itself is one of the articles for analysis, because poison may be found there, though not present in the contents. The identity of the subjects of analysis must be secured by the rules in § 13.

SECTION VII.

EXAMINATION IN CASES OF SUFFOCATION.

54. In cases of suspected drowning, the Inspectors will observe particularly whether grass, mud, or other objects are clutched by the hands, or contained under the nails; whether the tongue be protruded or not between the teeth; whether any fluid, froth, or foreign substances be contained in the mouth or nostrils, the trachea or bronchial ramifications; whether the stomach contain much water; whether the blood in the great vessels be fluid. When water, with particles of vegetable matter or mud is found within the body, these must be compared with what may exist in the water in which the body was discovered. Marks of injuries must be compared diligently with objects both in the water and on the banks near it.

55. In cases of suspected death by hanging, strangling, or smothering, it is important to attend particularly to the state of the face as to lividity, compared with the rest of the body; the state of the conjunctiva of the eyes as to vascularity; of the tongue as to position; of the throat, chin, and lips, as to marks of nail-scratches, ruffling of the scarf-skin, or small contusions; the state of the blood as to fluidity; the state of the membranous organs in the abdomen, and of the lungs, as to congestion. The mark of a cord or other ligature round the neck, must be attentively examined; and here it requires to be mentioned, that the mark is often not distinct till seven or eight hours after death, and that it is seldom a dark livid mark, as is very commonly supposed, but a pale greenish-brown streak, if made with a rope, presenting in general no ecchymosis, but the thinnest possible line of bright redness at either edge, where it is conterminous with the sound skin. Nevertheless, effusions of blood and lacerations should be also looked for under and around the mark, in the skin, cellular tissue, muscles, cartilages, and lining membrane of the larynx and trachea. Accessary injuries on other parts of the body, more especially on the chest, back, and arms, must also be looked for, as likewise

the appearance of coagulated blood having flowed from the nostrils or ears, and the discharge of fæces, urine, or semen.

SECTION VIII.

EXAMINATION IN CASES OF BURNING.

56. In supposed death by burning, the skin at the edge of the burns should be carefully examined for redness, or the appearance of vesicles containing fluid.

SECTION IX.

EXAMINATION IN CASES OF INFANTICIDE.

57. In cases of suspected infanticide, certain peculiarities must be borne in mind. The cavity of the head should be laid open with a pair of scissors. In opening the abdomen, the incision may be carried through the whole parietes at once; and the navel should be avoided, so that the state of the vessels of the navel-string may be examined correctly.

58. The inquiry in cases of infanticide should be conducted with a distinct reference to the five following questions:—
1. The probable degree of maturity of the child? 2. How long it has been dead? 3. Whether it died before, during, or after delivery, and how long after? 4. Whether death arose from natural causes, neglect, or violence? And, 5. Whether the suspected female be the mother of the child?

59. The points to be attended to for ascertaining the probable degree of maturity of the child are the state of the skin, its secretions, and its appendages, the hair and nails; the presence or absence of the pupillary membrane; the length and weight of the whole body; the relative length of the body and its members; and the point on the abdomen corresponding

with the middle of the length of the body ; the relative size of the lungs and heart ; the relative size of the liver, indicated by the position of its margin ; the situation of the meconium in the intestines ; the site of the testicles in the case of males.*

60. The points of chief importance in reference to the period which has elapsed after death are those specified in the last clause of § 17.

61. The circumstances which indicate whether the child died before, during, or after parturition, and how long after it, are the signs of putrefaction within the womb ; the marks on the crown, feet, buttocks, shoulders, &c. indicating presumptively the kind of labour ; the state of the lungs, heart, and great vessels, shewing whether or not it had breathed ; the nature of the contents of the stomach and of the intestines ; the presence or absence of urine in the bladder ; the presence of foreign matters in the wind-pipe ; the state of the umbilical cord, or of the navel itself, if the cord be detached.

62. In order to examine properly the state of the lungs, heart, and great vessels, with a view to determine whether or not the child had breathed, the inspection should be made in the following order :—Attend, first, to the situation of the lungs, how far they rise along the sides of the heart,—to their colour and texture,—and whether they crepitate or not. Examine next, but without displacing them, the condition of the ductus venosus and umbilical vessels. Then secure a ligature round the great vessels at the root of the neck, keeping clear of the ductus arteriosus, and another round the vena cava above the diaphragm. Cut both sets of vessels beyond the ligatures, and remove the heart and lungs in one mass ; which must be weighed and put into water, to ascertain whether the lungs,

* Those who have studied carefully the development of the nervous system and the progress of ossification in the fœtus, may attend also to the state of the brain, more especially of its convolutions, and to the advancement of ossification in the head and vertebræ. But the indications drawn from these sources are not so precise or plain as to be appreciated accurately by ordinary observers.

with the heart attached, sink or swim. In the next place, put a ligature round the pulmonary vessels, close to the lungs, and cut away the heart by an incision between it and the ligature. Compare now the relation of the diameter of the ductus arteriosus to that of the pulmonary trunk and of the pulmonary branches, and look for any indication of partial contraction in the duct towards its aortal end. Lastly, ascertain the weight of the lungs; their relative weight to that of the whole body; whether they crepitate when handled; whether they sink or swim in water; whether blood issues freely or sparingly when they are cut into; whether any fragments swim, in the instances where the entire lungs sink; and, in every instance of buoyancy, whether fragments of them continue to swim when well squeezed in a cloth.

63. The points to be considered in relation to the cause of death, are the signs of natural death before parturition, and of natural, accidental, and violent death during parturition, as well as after delivery. The most frequent forms of violent death during labour are, puncture of the fontanelles, orbits, or nucha; twisting of the neck after delivery of the head; compression of the head; detruncation of the head; strangling; and smothering. The chief varieties of violent death after delivery are, smothering by overlaying or otherwise; hemorrhage from the umbilical cord; simple exposure; starvation; injuries of the head from falls, blows, or compression; wounds of the throat; puncture of the fontanelles, nucha, orbits, cribriform plate, spine, ears, or heart; laceration of the great gut, or of the internal parts of the throat, by instruments thrust into the anus or mouth; drowning; poisoning; burning; strangling with the hand or a ligature; choking by foreign bodies thrust into the back of the throat, or by dividing the *frænum linguæ* and doubling back the tongue.

64. The circumstances noticed in § 59, 61, 62, compared with the signs of recent delivery in the female, will lead to the decision of the question, whether the suspected female be the mother of the child. These are the signs of the degree of maturity of the child; the signs on the body of the kind of labour;

the signs which indicate the date of its death, and the interval which elapsed both between its birth and death, and between its death and the inspection.

THOS. STEWART TRAILL.

R. CHRISTISON.

JAMES SYME.

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